GenCore version 5.1.4_p5_4578


OM nucleic - nucleic search, using sw model

Run on: March 1, 2003, 19:11:55 ; Search time 147.25 Seconds
(without alignments)
305.874 Million cell updates/sec

Title: US-09-818-918-39
Perfect score: 20
Sequence: 1 tccatggcggtcctgatgct 20

Scoring table: IDENTITY_NUC
Gapop 10.0 , Gapext 1.0

Searched: 2185239 seqs, 1125999159 residues

Total number of hits satisfying chosen parameters: 4370478

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : N_Geneseq_101002:*
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2: /SIDS2/gcgdata/geneseq/geneseqn-embl/NA1981.DAT:*
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22: /SIDS2/gcgdata/geneseq/geneseqn-embl/NA2001A.DAT:*
23: /SIDS2/gcgdata/geneseq/geneseqn-embl/NA2001B.DAT:*
24: /SIDS2/gcgdata/geneseq/geneseqn-embl/NA2002.DAT:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

| Result No. | Score | % Query Match | Length | DB | ID | Description |
|---|---|---|---|---|---|---|
| 1 | 20 | 100.0 | 20 | 19 | AAV27703 | Immunostimulatory |
| 2 | 20 | 100.0 | 20 | 19 | AAV27644 | Immunostimulatory |
| 3 | 20 | 100.0 | 20 | 20 | AAZ41890 | IL-12 secretion in |
| 4 | 20 | 100.0 | 20 | 21 | AAZ60961 | Nucleotide sequenc |
| 5 | 20 | 100.0 | 20 | 21 | AAZ47630 | Parasitic infectio |
| 6 | 20 | 100.0 | 20 | 21 | AAZ47836 | Immunostimulatory |
| 7 | 20 | 100.0 | 20 | 21 | AAZ47966 | Immune remodeling |
| 8 | 20 | 100.0 | 20 | 22 | AAH50604 | Immune response mo |
| 9 | 20 | 100.0 | 20 | 22 | AAF98810 | CpG immunostimulat |
| 10 | 20 | 100.0 | 20 | 22 | AAF99555 | Immunostimulatory |
| 11 | 20 | 100.0 | 20 | 22 | AAH19289 | CpG Oligonucleotid |
| 12 | 20 | 100.0 | 20 | 24 | AAL39215 | Murine Toll-like r |
| 13 | 20 | 100.0 | 20 | 24 | ABK46423 | Immunostimulatory |
| 14 | 20 | 100.0 | 20 | 24 | ABL35131 | Immunostimulatory |
| 15 | 20 | 100.0 | 20 | 24 | ABL35195 | Immunostimulatory |
| 16 | 20 | 100.0 | 20 | 24 | ABL35216 | Immunostimulatory |
| 17 | 20 | 100.0 | 20 | 24 | ABL35242 | Immunostimulatory |
| 18 | 20 | 100.0 | 20 | 24 | ABL35261 | Immunostimulatory |
| 19 | 20 | 100.0 | 20 | 24 | ABL35284 | Immunostimulatory |
| 20 | 20 | 100.0 | 20 | 24 | ABL35494 | Immunostimulatory |
| 21 | 20 | 100.0 | 20 | 24 | ABL35511 | Immunostimulatory |
| 22 | 20 | 100.0 | 20 | 24 | ABL39173 | Immunostimulatory |
| 23 | 20 | 100.0 | 21 | 24 | ABL35383 | Immunostimulatory |
| 24 | 20 | 100.0 | 21 | 24 | ABL35400 | Immunostimulatory |
| 25 | 20 | 100.0 | 22 | 24 | ABL35419 | Immunostimulatory |
| 26 | 20 | 100.0 | 25 | 24 | ABL35305 | Immunostimulatory |
| 27 | 20 | 100.0 | 26 | 24 | ABL35138 | Immunostimulatory |
| 28 | 20 | 100.0 | 28 | 24 | ABL35159 | Immunostimulatory |
| 29 | 20 | 100.0 | 28 | 24 | ABL35178 | Immunostimulatory |
| 30 | 20 | 100.0 | 28 | 24 | ABL35326 | Immunostimulatory |
| 31 | 20 | 100.0 | 28 | 24 | ABL35458 | Immunostimulatory |
| 32 | 20 | 100.0 | 28 | 24 | ABL35477 | Immunostimulatory |
| 33 | 20 | 100.0 | 33 | 24 | ABL35366 | Immunostimulatory |
| 34 | 20 | 100.0 | 33 | 24 | ABL35550 | Immunostimulatory |
| 35 | 20 | 100.0 | 34 | 24 | ABL35347 | Immunostimulatory |
| 36 | 20 | 100.0 | 37 | 24 | ABL35439 | Immunostimulatory |
| 37 | 20 | 100.0 | 40 | 24 | ABL35529 | Immunostimulatory |
| 38 | 20 | 100.0 | 40 | 24 | ABL35530 | Immunostimulatory |
| 39 | 18.4 | 92.0 | 20 | 17 | AAT16898 | Immunomodulatory o |
| 40 | 18.4 | 92.0 | 20 | 18 | AAV06240 | Oligonucleotide E1 |
| 41 | 18.4 | 92.0 | 20 | 18 | AAT62112 | Murine envelope C |
| 42 | 18.4 | 92.0 | 20 | 19 | AAV27696 | Immunostimulatory |
| 43 | 18.4 | 92.0 | 20 | 19 | AAV27702 | Immunostimulatory |
| 44 | 18.4 | 92.0 | 20 | 19 | AAV27704 | Immunostimulatory |
| 45 | 18.4 | 92.0 | 20 | 19 | AAV27645 | Immunostimulatory |

ALIGNMENTS

RESULT 1
AAV27703
ID AAV27703 standard; DNA; 20 BP.
XX
AC AAV27703;
XX
DT 01-OCT-1998 (first entry)
XX
DE Immunostimulatory oligodeoxyribonucleotide of the invention.
XX
KW Immunostimulatory; oligodeoxyribonucleotide; ODN;
KW unmethylated CpG dinucleotide; activate; lymphocyte; immune response;
KW Th2; Th1; cytokine; treatment; prevention; asthma; autoimmune disease;
KW desensitisation therapy; artificial adjuvant; antibody generation; ss.
XX
OS Synthetic.
XX
PN WO9818810-A1.
XX
PD 07-MAY-1998.
XX
PF 30-OCT-1997; 97WO-US19791.
XX
PR 30-OCT-1996; 96US-0738652.
XX
PA (IOWA ) UNIV IOWA RES FOUND.
XX
PI Kline JN, Krieg AM;
XX
DR WPI; 1998-272127/24.
XX
PT New immunostimulatory nucleic acid molecules - which contain at

PT least one unmethylated CpG dinucleotide, used for treating e.g.
PT tumours, infections or autoimmune disease
XX
PS Disclosure; Page 28; 109pp; English.
XX
CC AAV27641-751 represent immunostimulatory oligodeoxyribonucleotides
CC (ODNs) of the invention. The ODNs contain at least one unmethylated CpG
CC dinucleotide, and have the formula:
CC 5' N1X1CGX2N2 3', where at least one nucleotide separates consecutive
CC CpGs, X1 is adenine, guanine, or thymine, X2 is cytosine or thymine, N
CC is any nucleotide and N1+N2 is 0-26 bases with the provision that N1 and
CC N2 does not contain a CCGG tetramer or more than one CCG or CGG trimer
CC OR 5' NX1X2CGX3X4N 3', where at least one nucleotide separates
CC consecutive CpGs, X1 and X2 are selected from GpT, GpG, GpA, ApT and ApA,
CC X3and X4 are selected from TpT or CpT, N is any nucleotide and N1+N2 is
CC 0-26 bases with the provision that N1 and N2 does not contain a CCGG
CC tetramer or more than one CCG or CGG trimer.
CC The ODNs activate lymphocytes in a subject and redirect a subject's
CC immune response from a Th2 to a Th1 (e.g. by inducing monocytic cells
CC and other cells to produce Th1 cytokines, including IL-12, IFN-gamma and
CC GM-CSF). The ODNs can be used to treat or prevent an asthmatic disorder,
CC autoimmune diseases, in desensitisation therapy, as an artificial
CC adjuvant during antibody generation in a mammal such as a mouse or a
CC human.
XX
SQ Sequence 20 BP; 2 A; 6 C; 6 G; 6 T; 0 other;

Query Match 100.0%; Score 20; DB 19; Length 20;
Best Local Similarity 100.0%; Pred. No. 2.7;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 TCCATGGCGGTCCTGATGCT 20
||||||||||||||||||||
Db 1 TCCATGGCGGTCCTGATGCT 20

RESULT 2
AAV27644
ID AAV27644 standard; DNA; 20 BP.
XX
AC AAV27644;
XX
DT 01-OCT-1998 (first entry)
XX
DE Immunostimulatory oligodeoxyribonucleotide of the invention.
XX
KW Immunostimulatory; oligodeoxyribonucleotide; ODN;
KW unmethylated CpG dinucleotide; activate; lymphocyte; immune response;
KW Th2; Th1; cytokine; treatment; prevention; asthma; autoimmune disease;
KW desensitisation therapy; artificial adjuvant; antibody generation; ss.
XX
OS Synthetic.
XX
PN WO9818810-A1.
XX
PD 07-MAY-1998.
XX
PF 30-OCT-1997; 97WO-US19791.
XX
PR 30-OCT-1996; 96US-0738652.
XX
PA (IOWA ) UNIV IOWA RES FOUND.
XX
PI Kline JN, Krieg AM;
XX
DR WPI; 1998-272127/24.
XX
PT New immunostimulatory nucleic acid molecules - which contain at
PT least one unmethylated CpG dinucleotide, used for treating e.g.
PT tumours, infections or autoimmune disease
XX
PS Claim 23; Page 82; 109pp; English.
XX
CC AAV27641-751 represent immunostimulatory oligodeoxyribonucleotides
CC (ODNs) of the invention. The ODNs contain at least one unmethylated CpG
CC dinucleotide, and have the formula:
CC 5' N1X1CGX2N2 3', where at least one nucleotide separates consecutive
CC CpGs, X1 is adenine, guanine, or thymine, X2 is cytosine or thymine, N
CC is any nucleotide and N1+N2 is 0-26 bases with the provision that N1 and
CC N2 does not contain a CCGG tetramer or more than one CCG or CGG trimer
CC OR 5' NX1X2CGX3X4N 3', where at least one nucleotide separates
CC consecutive CpGs, X1 and X2 are selected from GpT, GpG, GpA, ApT and ApA,
CC X3and X4 are selected from TpT or CpT, N is any nucleotide and N1+N2 is
CC 0-26 bases with the provision that N1 and N2 does not contain a CCGG
CC tetramer or more than one CCG or CGG trimer.
CC The ODNs activate lymphocytes in a subject and redirect a subject's
CC immune response from a Th2 to a Th1 (e.g. by inducing monocytic cells
CC and other cells to produce Th1 cytokines, including IL-12, IFN-gamma and
CC GM-CSF). The ODNs can be used to treat or prevent an asthmatic disorder,
CC autoimmune diseases, in desensitisation therapy, as an artificial
CC adjuvant during antibody generation in a mammal such as a mouse or a
CC human.
XX
SQ Sequence 20 BP; 2 A; 6 C; 6 G; 6 T; 0 other;

Query Match 100.0%; Score 20; DB 19; Length 20;
Best Local Similarity 100.0%; Pred. No. 2.7;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 TCCATGGCGGTCCTGATGCT 20
||||||||||||||||||||
Db 1 TCCATGGCGGTCCTGATGCT 20

RESULT 3
AAZ41890
ID AAZ41890 standard; DNA; 20 BP.
XX
AC AAZ41890;
XX
DT 24-JAN-2000 (first entry)
XX
DE IL-12 secretion inducing CpG oligonucleotide 35.
XX
KW CpG oligonucleotide; phosphorothioate; interleukin-12; IL-12; secretion;
KW human PBMC; immune response; cancer; HIV; bacterial disease; asthma;
KW neoplastic disorder; jaagsiekte; B cell; NK cell; ss; cytokine;
KW antigen presenting cell; infection; allergic disease.
XX
OS Synthetic.
XX
PN WO9951259-A2.
XX
PD 14-OCT-1999.
XX
PF 02-APR-1999; 99WO-US07335.
XX
PR 03-APR-1998; 98US-0080729.
XX
PA (IOWA ) UNIV IOWA RES FOUND.
XX
PI Krieg AM, Weiner G;
XX
DR WPI; 1999-620169/53.
XX
PT Novel synergistic combinations of immunostimulatory oligonucleotides
PT and immunopotentiating cytokines are useful for stimulating the immune
PT system -
XX
PS Example 8; Page 76; 91pp; English.
XX
CC Sequences AAZ41856-Z41949 are phosphorothioate CpG oligonucleotides
CC which are used in the invention to induce interleukin-12 (IL-12)
CC secretion from human PBMC. The invention comprises stimulating an immune
CC response in a subject comprising administering to a subject exposed to an
CC antigen, an immunopotentiating cytokine and an immunostimulatory CpG

CC oligonucleotide to induce a synergistic antigen specific immune
CC response. The methods are useful for treating cancer by stimulating an
CC antigen specific immune response against a cancer antigen. The methods
CC can also be used to treat neoplastic disorders in humans, including but
CC not limited to: sarcoma, carcinoma, fibroma, Lymphoma, melanoma,
CC neuroblastoma, retinoblastoma, and glioma. The methods are also useful
CC for treating infectious diseases, e.g. viral diseases such as HIV,
CC bacterial diseases, and fungal diseases. The methods may also be used to
CC treat allergic diseases, e.g. asthma. The methods and compositions may
CC also be applied to treat cancer and tumours in non human subjects,
CC e.g. cats and dogs. Neoplasias affecting agricultural livestock may also
CC be treated and include leukaemia, haemangiopericytoma and bovine ocular
CC neoplasia. Chronic, infectious, contagious diseases of sheep and goats
CC caused by the bacterium Corynebacterium pseudotuberculosis, and
CC contagious lung tumour of sheep caused by jaagsiekte may also be
CC treated. CpG oligonucleotides can be useful in activating B cells, NK
CC cells, and antigen presenting cells, such as monocytes and macrophages.
CC CpG oligonucleotides enhance antibody dependent cellular cytotoxicity and
CC can be used as an adjuvant in conjunction with tumour antigens to
CC protect against a tumour challenge.
XX
SQ Sequence 20 BP; 2 A; 6 C; 6 G; 6 T; 0 other;

Query Match 100.0%; Score 20; DB 20; Length 20;
Best Local Similarity 100.0%; Pred. No. 2.7;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 TCCATGGCGGTCCTGATGCT 20
||||||||||||||||||||
Db 1 TCCATGGCGGTCCTGATGCT 20

RESULT 4
AAZ60961
ID AAZ60961 standard; DNA; 20 BP.
XX
AC AAZ60961;
XX
DT 30-MAY-2000 (first entry)
XX
DE Nucleotide sequence of an immunostimulatory CpG oligonucleotide.
XX
KW Immunostimulatory; stereoisomer; CpG oligonucleotide; Th2; Th1; asthma;
KW allergic reaction; allergen; cancer antigen; cancer; immunoinhibitory;
KW inflammatory disease; inflammatory bowel disease; autoimmune disease;
KW gingivitis; psoriasis; sepsis; ss.
XX
OS Synthetic.
XX
PN WO200006588-A1.
XX
PD 10-FEB-2000.
XX
PF 27-JUL-1999; 99WO-US17100.
XX
PR 27-JUL-1998; 98US-0094370.
XX
PA (IOWA ) UNIV IOWA RES FOUND.
PA (CPGI-) CPG IMMUNOPHARMACEUTICALS INC.
XX
PI Krieg AM;
XX
DR WPI; 2000-195254/17.
XX
PT Immunostimulatory and immunoinhibitory stereoisomers of CpG
PT oligonucleotides useful for immunotherapy of cancer -
XX
PS Disclosure; Page 11; 88pp; English.
XX
CC AAZ60933-Z61015 represent immunostimulatory stereoisomers of CpG
CC oligonucleotides. The sequences are derived from generic nucleic
CC acid sequence, from which immunoinhibitory sequences may also be
CC derived. The immunostimulatory nucleic acids can be co-administered
CC with an antigen to induce an antigen-specific immune response. The
CC immunostimulatory nucleic acids can also be used in methods for
CC redirecting a subject's immune response from a Th2 to a Th1, for
CC treating asthma, for desensitising a subject against the occurrence
CC of an allergic reaction in response to contact with an allergen, for
CC activating an immune cell, especially a lymphocyte or a dendritic cell
CC expressing a cancer antigen or for treating cancer. The immunoinhibitory
CC nucleic acid can be used to prevent an immune response, especially where
CC the immune response in the subject is excessive due to having received
CC an immune stimulating compound. The immunoinhibitory nucleic acid can
CC be used to treat a subject having or at risk of an inflammatory disease,
CC especially inflammatory bowel disease, autoimmune disease, gingivitis,
CC psoriasis and sepsis.
XX
SQ Sequence 20 BP; 2 A; 6 C; 6 G; 6 T; 0 other;

Query Match 100.0%; Score 20; DB 21; Length 20;
Best Local Similarity 100.0%; Pred. No. 2.7;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 TCCATGGCGGTCCTGATGCT 20
||||||||||||||||||||
Db 1 TCCATGGCGGTCCTGATGCT 20

RESULT 5
AAZ47630
ID AAZ47630 standard; DNA; 20 BP.
XX
AC AAZ47630;
XX
DT 01-MAR-2000 (first entry)
XX
DE Parasitic infection preventing exemplary oligonucleotide SEQ ID NO:36.
XX
KW Immune system; immunostimulatory; parasitic infection; parasite;
KW CpG oligonucleotide; antigen presenting cell; natural killer cell;
KW granulocyte; malaria; helminth disease; tick; mite; ss.
XX
OS Synthetic.
XX
PN WO9956755-A1.
XX
PD 11-NOV-1999.
XX
PF 06-MAY-1999; 99WO-US09863.
XX
PR 06-MAY-1998; 98US-0084512.
XX
PA (IOWA ) UNIV IOWA RES FOUND.
PA (OTTA-) OTTAWA CIVIC LOEB RES INST.
PA (USNA ) US SEC OF NAVY.
XX
PI Gramzinski RA, Krieg AM, Davis HL, Hoffman SL;
XX
DR WPI; 2000-062123/05.
XX
PT Treating and preventing parasitic infections using CpG oligonucleotides
XX
PS Disclosure; Page 20; 74pp; English.
XX
CC The present invention describes a method for treating and preventing
CC parasitic infection by administration of unmethylated CpG
CC oligonucleotides. The CpG oligonucleotides are able to stimulate the
CC innate immune system via the activation of immune cells, such as antigen
CC presenting cells, natural killer cells and granulocytes. The CpG
CC oligonucleotides and the method can be used to treat and prevent
CC parasitic diseases, such as malaria, helminth diseases, tick and mites
CC in humans, animals and poultry. The oligonucleotides may be administered
CC in conjunction with parasiticides or other therapeutic compounds after
CC an organism has been diagnosed to be infected with parasites. Diseases
CC which can be treated or prevented include those caused by Plasmodium
CC falciparum, P. ovale, P. malariae, P. vivax, P. knowlesi, Babesia

CC micrоti, B. divergens, Trypanosoma cruzi, T. gambiense, T. rhodesiense,
CC Schistosoma mansoni, Toxoplasma gondii, Trichinella spiralis, Leishmania
CC major, L. donovani, L. braziliensis, and L. tropica. The parasite is
CC especially capable of causing malaria. The present sequence represents
CC a parasitic infection preventing exemplary oligonucleotide sequence from
CC the present invention.
XX
SQ Sequence 20 BP; 2 A; 6 C; 6 G; 6 T; 0 other;

Query Match 100.0%; Score 20; DB 21; Length 20;
Best Local Similarity 100.0%; Pred. No. 2.7;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 TCCATGGCGGTCCTGATGCT 20
||||||||||||||||||||
Db 1 TCCATGGCGGTCCTGATGCT 20

RESULT 6
AAZ47836
ID AAZ47836 standard; DNA; 20 BP.
XX
AC AAZ47836;
XX
DT 07-MAR-2000 (first entry)
XX
DE Immunostimulatory oligonucleotide sequence SEQ ID NO:37.
XX
KW Mucosal immunity; immunostimulatory; CpG motif; immune response;
KW antigen; allergic reaction; cancer; infectious disease; asthma; eczema;
KW allergic rhinitis; coryza; hay fever; conjunctivitis; bronchial asthma;
KW urticaria; food allergy; atopic condition; mucosal delivery; ss.
XX
OS Synthetic.
XX
PN WO9961056-A2.
XX
PD 02-DEC-1999.
XX
PF 21-MAY-1999; 99WO-US11359.
XX
PR 22-MAY-1998; 98US-0086393.
XX
PA (LOEB-) LOEB HEALTH RES INST AT OTTAWA HOSPITAL.
PA (CPGI-) CPG IMMUNOPHARMACEUTICALS INC.
XX
PI McCluskie MJ, Davis HL;
XX
DR WPI; 2000-062585/05.
XX
PT Use of CpG containing oligonucleotides as adjuvants for inducing an
PT immune response -
XX
PS Disclosure; Page 24; 116pp; English.
XX
CC The present invention describes a method using CpG containing
CC oligonucleotides (ONs) as adjuvants for inducing an immune response.
CC The method for inducing a mucosal immune response (MIR) comprises:
CC (1) administering to a mucosal surface of a subject an ON, having a
CC sequence including at least the formula (I); and (2) exposing the
CC subject to an antigen to induce the MIR, where the antigen is not
CC encoded in a nucleic acid vector: 5'X1X2CGX3X43' (I), where
CC C and G = unmethylated, and X1, X2, X3 and X4 = nucleotides. The method
CC can be used for treating a subject at risk of developing an allergic
CC reaction, cancer or infectious disease. It can be used for treating
CC asthmatic subjects, eczema, allergic rhinitis or coryza, hay fever,
CC conjunctivitis, bronchial asthma, urticaria, food allergies or other
CC atopic conditions. The antigen may be derived from infectious organisms
CC such as infectious bacteria, viruses, parasites or fungi. It can be used
CC in humans or animals, e.g. bovine, equine, feline, swine, aquatic or
CC avian species. The ONs act as potent mucosal adjuvants to induce immune
CC responses at both local and remote sites against an antigen
CC administered to the mucosal tissue. Both systemic and mucosal immunity
CC are induced by mucosal delivery of the ONs. AAZ47808 to AAZ47891
CC represent examples of immunostimulatory oligonucleotides given in the
CC present invention.
XX
SQ Sequence 20 BP; 2 A; 6 C; 6 G; 6 T; 0 other;

Query Match 100.0%; Score 20; DB 21; Length 20;
Best Local Similarity 100.0%; Pred. No. 2.7;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 TCCATGGCGGTCCTGATGCT 20
||||||||||||||||||||
Db 1 TCCATGGCGGTCCTGATGCT 20

RESULT 7
AAZ47966
ID AAZ47966 standard; DNA; 20 BP.
XX
AC AAZ47966;
XX
DT 08-MAR-2000 (first entry)
XX
DE Immune remodeling inducing CpG oligonucleotide SEQ ID NO:44.
XX
KW Haematopoiesis; regulation; CpG oligonucleotide; phosphorothioate;
KW immune remodeling; thrombopoiesis; anaemia; immune system; cancer;
KW immune response; allergic reaction; infectious disease; asthma;
KW thrombocytopaenia; immunohaemolytic disorder; genetic disorder;
KW haemoglobinopathy; kidney failure; chronic inflammatory disorder;
KW rheumatoid arthritis; ss.
XX
OS Synthetic.
XX
PN WO9958118-A2.
XX
PD 18-NOV-1999.
XX
PF 14-MAY-1999; 99WO-IB01285.
XX
PR 14-MAY-1998; 98US-0085516.
PR 02-FEB-1999; 99US-0241653.
XX
PA (CPGI-) CPG IMMUNOPHARMACEUTICALS GMBH.
PA (CPGI-) CPG IMMUNOPHARMACEUTICALS INC.
XX
PI Wagner H, Lipford G;
XX
DR WPI; 2000-062261/05.
XX
PT Use of CpG containing oligonucleotides for, e.g. inducing an
PT antigen-specific immune response -
XX
PS Example 1; Page 65; 116pp; English.
XX
CC The present invention describes a method using CpG containing
CC oligonucleotides (ONs) for regulating immune system remodeling and for
CC regulating haematopoiesis. The method for inducing an antigen-specific
CC immune response comprises: (1) administering an ON having a sequence
CC including at least the formula (I); and (2) exposing the subject to an
CC antigen at least 3 days after the ON is administered to the subject to
CC produce an antigen-specific immune response: 5' X1CGX2 3' (I), where
CC the ON = includes at least 8 nucleotides; C and G = unmethylated, and
CC X1 and X2 = nucleotides. The method can be used for inducing an immune
CC response against an antigen such as cells, cell extracts, proteins,
CC polysaccharides, polysaccharide conjugates, lipids, glycolipids,
CC carbohydrate, viral extracts, viruses, bacteria, fungi, parasites and
CC allergens. It can be used in a subject at risk of developing cancer or
CC an allergic reaction. It can also be used for treating an infectious
CC disease, allergic diseases and asthma, as well as thrombocytopaenia
CC which is drug-induced, due to an autoimmune disorder such as idiopathic
CC thrombocytopenic purpura, or resulting from accidental or therapeutic
CC radiation exposure. It can also be used for treating anaemia such as

CC drug-induced anaemia, immunohaemolytic disorder, genetic disorders such
CC as haemoglobinopathy and inherited haemolytic anaemia, inadequate
CC production despite adequate iron stores, chronic disease such as kidney
CC failure, and chronic inflammatory disorder such as rheumatoid arthritis,
CC or anaemia resulting from accidental or therapeutic radiation exposure.
CC AAZ47932 to AAZ48029 represent phosphorothioate CpG oligonucleotides
CC used in the exemplification of the present invention.
XX
SQ Sequence 20 BP; 2 A; 6 C; 6 G; 6 T; 0 other;

Query Match 100.0%; Score 20; DB 21; Length 20;
Best Local Similarity 100.0%; Pred. No. 2.7;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 TCCATGGCGGTCCTGATGCT 20
||||||||||||||||||||
Db 1 TCCATGGCGGTCCTGATGCT 20

RESULT 8
AAH50604
ID AAH50604 standard; DNA; 20 BP.
XX
AC AAH50604;
XX
DT 22-AUG-2001 (first entry)
XX
DE Immune response modulating related oligonucleotide SEQ ID NO:34.
XX
KW Immunostimulatory; inducing; natural killer cell; lytic activity;
KW unmethylated CpG dinucleotide; immune response; B cell proliferation;
KW Th1; immune activation; interleukin 6; IL-6; interferon gamma;
KW IFN-gamma; cytokine; ss.
XX
OS Synthetic.
XX
PN US6239116-B1.
XX
PD 29-MAY-2001.
XX
PF 30-OCT-1997; 97US-0960774.
XX
PR 30-OCT-1996; 96US-0738652.
XX
PA (IOWA ) UNIV IOWA RES FOUND.
PA (COLE-) COLEY PHARM GROUP INC.
PA (USSH ) US DEPT HEALTH & HUMAN SERVICES.
XX
PI Krieg AM, Kline JN;
XX
DR WPI; 2001-380456/40.
XX
PT Methods for inducing Il-6, interferon-gamma or Il-12, or stimulating
PT natural killer cell lytic activity in a human, comprise administering
PT to the subject or exposing a natural killer cell to immunostimulatory
PT nucleic acids -
XX
PS Claim 13; Column 100; 74pp; English.
XX
CC The present invention describes methods for inducing interleukin 6
CC (IL-6), interferon-gamma (IFN-gamma) or IL-12, or for stimulating
CC natural killer cell lytic activity. The methods comprise administering
CC to the subject or exposing a natural killer cell to an immunostimulatory
CC nucleic acid. Also described are: (1) inducing IL-6 in a subject
CC comprising administering to the subject to induce IL-6 in the subject
CC the immunostimulatory nucleic acid; (2) stimulating natural killer cell
CC lytic activity comprising exposing a natural killer cell to the
CC immunostimulatory nucleic acid to stimulate natural killer cell lytic
CC activity; (3) inducing interferon-gamma in a subject to treat an immune
CC system deficiency comprising administering to the subject to induce
CC interferon-gamma production, the immunostimulatory nucleic acid; and
CC (4) inducing IL-12 in a subject comprising administering to the subject
CC the immunostimulatory nucleic acid. The methods are useful for inducing
CC IL-6, interferon-gamma or IL-12, or stimulating natural killer cell
CC lytic activity in a subject, particularly a human. The methods are
CC particularly useful for modulating an immune response. AAH50571 to
CC AAH50671 represent oligonucleotide sequences used in the exemplification
CC of the present invention.
XX
SQ Sequence 20 BP; 2 A; 6 C; 6 G; 6 T; 0 other;

Query Match 100.0%; Score 20; DB 22; Length 20;
Best Local Similarity 100.0%; Pred. No. 2.7;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 TCCATGGCGGTCCTGATGCT 20
||||||||||||||||||||
Db 1 TCCATGGCGGTCCTGATGCT 20

RESULT 9
AAF98810
ID AAF98810 standard; DNA; 20 BP.
XX
AC AAF98810;
XX
DT 11-JUN-2001 (first entry)
XX
DE CpG immunostimulatory nucleic acid SEQ ID NO: 88.
XX
KW Immunostimulatory nucleic acid; ISNA; human; interferon alpha; IFN-alpha;
KW viral infection; phosphorothioate backbone; palindrome; cancer; ds.
XX
OS Synthetic.
XX
PN WO200122990-A2.
XX
PD 05-APR-2001.
XX
PF 27-SEP-2000; 2000WO-US26527.
XX
PR 27-SEP-1999; 99US-0156147.
XX
PA (COLE-) COLEY PHARM GROUP INC.
PA (IOWA ) UNIV IOWA RES FOUND.
XX
PI Hartmann G, Bratzler RL, Krieg A;
XX
DR WPI; 2001-290487/30.
XX
PT Improving the efficacy of treatments involving the administration of
PT interferon-alpha by co-administering an isolated immunostimulatory
PT nucleic acid -
XX
PS Disclosure; Page 22; 168pp; English.
XX
CC The present invention describes an improvement to a method requiring the
CC administration of interferon alpha (IFN-alpha), involving administering
CC an immunostimulatory nucleic acid (ISNA). The sequences of a number of
CC such nucleic acids are also provided. These may comprise oligonucleotides
CC with phosphorothioate backbones, palindromes, or G-rich sequences. The
CC sequences of the invention are useful in the treatment of proliferative
CC diseases, such as cancers, and viral infections. The present sequence is
CC an example of an immunostimulatory oligonucleotide.
XX
SQ Sequence 20 BP; 2 A; 6 C; 6 G; 6 T; 0 other;

Query Match 100.0%; Score 20; DB 22; Length 20;
Best Local Similarity 100.0%; Pred. No. 2.7;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 TCCATGGCGGTCCTGATGCT 20
||||||||||||||||||||
Db 1 TCCATGGCGGTCCTGATGCT 20

RESULT 10
AAF99555
ID AAF99555 standard; DNA; 20 BP.
XX
AC AAF99555;
XX
DT 12-JUN-2001 (first entry)
XX
DE Immunostimulatory nucleic acid #671.
XX
KW Vaccine; cytostatic; virucidal; bactericidal; fungicidal; anti-parasitic;
KW immunostimulatory; tumour; viral infection; bacterial infection;
KW fungal infection; parasitic infection; cancer; asthma;
KW infectious disease; allergy; immune deficiency; phosphorothioate; ss.
XX
OS Synthetic.
XX
PN WO200122972-A2.
XX
PD 05-APR-2001.
XX
PF 25-SEP-2000; 2000WO-US26383.
XX
PR 25-SEP-1999; 99US-0156113.
PR 27-SEP-1999; 99US-0156135.
PR 23-AUG-2000; 2000US-0227436.
XX
PA (IOWA ) UNIV IOWA RES FOUND.
PA (COLE-) COLEY PHARM GMBH.
XX
PI Krieg AM, Schetter C, Vollmer J;
XX
DR WPI; 2001-273485/28.
XX
PT Vaccinating against tumors, infectious diseases, allergies and asthma
PT using immunostimulatory Py-rich and TG nucleic acids -
XX
PS Claim 101; Page 53; 338pp; English.
XX
CC The present invention relates to a method for stimulating an immune
CC response. The method comprises administering an immunostimulatory nucleic
CC acid to a non-rodent subject in sufficient quantity to stimulate an
CC immune response. The present sequence is one such immunostimulatory
CC nucleic acid. The immunostimulatory nucleic acids can be pyrimidine rich
CC (py-rich) or thymidine (T) rich. The method is used to vaccinate subjects
CC against tumour antigens, viral antigens (e.g. herpesviridae, retroviridae
CC and/or orthomyxoviridae), bacterial antigens (e.g. toxoplasma,
CC haemophilus, campylobacter, clostridium, Escherichia coli and/or
CC staphylococcus), fungal antigens and/or parasitic antigens. The method is
CC also useful for preventing cancer, asthma, infectious disease, allergy or
CC immune deficiency. The present sequence can also be used to redirect a
CC Th2 to a Th1 immune response and to activate immune cells.
CC Note: the present sequence may have a phosphorothioate backbone.
XX
SQ Sequence 20 BP; 2 A; 6 C; 6 G; 6 T; 0 other;

Query Match 100.0%; Score 20; DB 22; Length 20;
Best Local Similarity 100.0%; Pred. No. 2.7;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 TCCATGGCGGTCCTGATGCT 20
||||||||||||||||||||
Db 1 TCCATGGCGGTCCTGATGCT 20

RESULT 11
AAH19289
ID AAH19289 standard; DNA; 20 BP.
XX
AC AAH19289;
XX
DT 13-JUL-2001 (first entry)
XX
DE CpG Oligonucleotide 1615.
XX
KW Immunostimulant; antiallergic; cytostatic; antiasthmatic; vaccine;
KW gene therapy; CpG; immune system deficiency; tumour; cancer; infection;
KW leukaemia; ss.
XX
OS Synthetic.
XX
PN US6207646-B1.
XX
PD 27-MAR-2001.
XX
PF 30-OCT-1996; 96US-0738652.
XX
PR 07-FEB-1995; 95US-0386063.
PR 15-JUL-1994; 94US-0276358.
XX
PA (IOWA ) UNIV IOWA RES FOUND.
PA (COLE-) COLEY PHARM GROUP INC.
PA (USSH ) US DEPT HEALTH & HUMAN SERVICES.
XX
PI Krieg AM, Kline J, Klinman D, Steinberg AD;
XX
DR WPI; 2001-280761/29.
XX
PT Compositions comprising immunostimulatory molecules which comprise
PT unmethylated CpG dinucleotides useful for ameliorating immune system
PT deficiency, treating leukemia and desensitizing subject against
PT allergic response -
XX
PS Disclosure; Columns 17-18; 55pp; English.
XX
CC The present invention relates to a composition comprising an isolated
CC immunostimulatory nucleic acid which comprises unmethylated
CC cytosine-guanine (CpG) dinucleotides and an antigen in a carrier. The
CC present sequence is an oligonucleotide, which was used in the present
CC invention. The immunostimulatory nucleic acids are useful for
CC ameliorating an immune system deficiency (the presence of tumour, cancer
CC or infectious agent) in a subject. The immunostimulatory nucleic acids
CC are also useful for desensitising a subject against the occurrence of an
CC allergic reaction in response to contact with a particular allergen.
CC The immunostimulatory nucleic acids are also useful for vaccination and
CC for treating leukaemia in a subject on administration prior to or in
CC conjunction with a chemotherapy, so that the subject's leukaemia cells
CC are more sensitive to chemotherapy. The compositions are useful for
CC inducing an antigen specific immune response in the subject. The
CC compositions can be also used to treat or prevent the symptoms of asthma.
XX
SQ Sequence 20 BP; 2 A; 6 C; 6 G; 6 T; 0 other;

Query Match 100.0%; Score 20; DB 22; Length 20;
Best Local Similarity 100.0%; Pred. No. 2.7;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 TCCATGGCGGTCCTGATGCT 20
||||||||||||||||||||
Db 1 TCCATGGCGGTCCTGATGCT 20

RESULT 12
AAL39215
ID AAL39215 standard; DNA; 20 BP.
XX
AC AAL39215;
XX
DT 05-SEP-2002 (first entry)
XX
DE Murine Toll-like receptor related CpG DNA SEQ ID No 90.
XX
KW Murine Toll-like receptor; TLR9; TLR7; TLR8; ISNA; ds.
XX
OS Unidentified.
XX

PN WO200222809-A2.
XX
PD 21-MAR-2002.
XX
PF 17-SEP-2001; 2001WO-US29229.
XX
PR 15-SEP-2000; 2000US-233035P.
PR 23-JAN-2001; 2001US-263657P.
PR 17-MAY-2001; 2001US-291726P.
PR 22-JUN-2001; 2001US-300210P.
XX
PA (COLE-) COLEY PHARM GMBH.
XX
PI Bauer S, Lipford G, Wagner H;
XX
DR WPI; 2002-393964/42.
XX
PT New isolated murine Toll-like receptor (TLR)9, TLR7, TLR8 polypeptides,
PT useful for identifying species specificity of immunostimulatory nucleic
PT acid and identifying immunostimulatory nucleic acids -
XX
PS Disclosure; Page 77; 195pp; English.
XX
CC The invention relates to isolated murine Toll-like receptors (TLR)9,
CC TLR7 and TLR8 polypeptides. These polypeptides comprise fully defined
CC sequences of 1032, 1050 or 1032 amino acids as given in specification, or
CC their fragments, where TLR9, TLR7 and TLR8 polypeptides or their
CC fragments have an amino acid sequence which is identical to human TLR9,
CC TLR7 or TLR8 polypeptides or their fragment except for at least one amino
CC acid of a murine TLR polypeptide. The isolated nucleic acids of the
CC invention are useful for inhibiting TLR9 signalling activity in a cell.
CC TLR7, TLR8 and TLR9 polypeptides are useful for identifying nucleic acid
CC molecules which interact with a TLR polypeptide or its fragment. The
CC TLR7, TLR8 or TLR9 polypeptides are also useful for identifying ISNA. The
CC TLR7, TLR8 and TLR9 polypeptides are also useful for comparing TLR9
CC signalling activity of a test compound (that is not a nucleic acid, and
CC is a polypeptide or a part of a combinatorial library of compounds) with
CC an ISNA. The TLR7, TLR8 and TLR9 polypeptides are also useful for
CC identifying species specificity of an ISNA. The isolated nucleic acids of
CC the invention are useful as probes or primers. This polynucleotide
CC sequence represents DNA relating to the isolated Toll-like receptors of
CC the invention.
XX
SQ Sequence 20 BP; 2 A; 6 C; 6 G; 6 T; 0 other;

Query Match 100.0%; Score 20; DB 24; Length 20;
Best Local Similarity 100.0%; Pred. No. 2.7;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 TCCATGGCGGTCCTGATGCT 20
||||||||||||||||||||
Db 1 TCCATGGCGGTCCTGATGCT 20

RESULT 13
ABK46423
ID ABK46423 standard; DNA; 20 BP.
XX
AC ABK46423;
XX
DT 05-JUN-2002 (first entry)
XX
DE Immunostimulatory unmethylated CpG oligodideoxynucleotide #13.
XX
KW unmethylated CpG; oligdideoxynucleotide; ODN; virucide; vaccine;
KW Paramyxoviridae; F protein; respiratory syncytial virus; RSV;
KW viral bronchiolitis; pneumonia; infectious pulmonary disease;
KW bronchopulmonary dysplasia; congenital heart condition; ss.
XX
OS Synthetic.
XX
PN WO200211761-A2.
XX
PD 14-FEB-2002.
XX
PF 09-AUG-2001; 2001WO-US41633.
XX
PR 10-AUG-2000; 2000US-224011P.
PR 01-SEP-2000; 2000US-229307P.
XX
PA (JACK-) JACKSON FOUND ADVANCEMENT MILITARY MED.
XX
PI Mond JJ, Prince G, Klinman DM;
XX
DR WPI; 2002-227118/28.
XX
PT Vaccine for immunising patient against respiratory syncytial virus, has
PT epitopes of Paramyxoviridae F protein, and cytosine followed by guanine
PT linked by phosphate bond-oligodideoxynucleotides -
XX
PS Claim 4; Page 7; 30pp; English.
XX
CC The invention describes a vaccine comprising one or more epitopes of a
CC Paramyxoviridae F protein, and one or more CpG (cytosine followed by
CC guanine linked by phosphate bond)-oligodideoxynucleotides (ODNs). The
CC vaccine is useful for vaccinating a patient especially against viruses
CC of the Paramyxoviridae family e.g. respiratory syncytial virus (RSV),
CC the primary cause of viral bronchiolitis and pneumonia in infants and
CC children, and infectious pulmonary disease in infants. RSV has been
CC particularly implicated in death of infants that are premature, have
CC bronchopulmonary dysplasia, or congenital heart conditions. This
CC sequence represents an oligodideoxynucleotide that can be used in the
CC creation of the vaccine.
XX
SQ Sequence 20 BP; 2 A; 6 C; 6 G; 6 T; 0 other;

Query Match 100.0%; Score 20; DB 24; Length 20;
Best Local Similarity 100.0%; Pred. No. 2.7;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 TCCATGGCGGTCCTGATGCT 20
||||||||||||||||||||
Db 1 TCCATGGCGGTCCTGATGCT 20

RESULT 14
ABL35131
ID ABL35131 standard; DNA; 20 BP.
XX
AC ABL35131;
XX
DT 04-APR-2002 (first entry)
XX
DE Immunostimulatory oligonucleotide SEQ ID NO: 39.
XX
KW DNA/RNA hybrid; phosphorothioate backbone; immunostimulatory;
KW vaccine; infection; allergy; cancer; hypersensitivity; bio-warfare;
KW immunostimulant; antiallergic; cytostatic; antimicrobial; anti-HIV;
KW immunosuppressive; protozoacide; virucide; hepatotropic; gene therapy;
KW antiinflammatory; antibacterial; ss.
XX
OS Synthetic.
XX
FH Key Location/Qualifiers
FT misc_RNA 1..20
FT /*tag= a
FT /note= "optionally thymidine is replaced by uracil to
FT form RNA or DNA/RNA hybrids. Thymidine is linked to at
FT least one other base through a ribose sugar"
XX
PN WO200193902-A2.
XX
PD 13-DEC-2001.
XX
PF 07-JUN-2001; 2001WO-US18276.
XX

PR 07-JUN-2000; 2000US-209797P.
XX
PA (BIOS-) BIOSYNEXUS INC.
XX
PI Mond JJ, Flora M, Klinman DM;
XX
DR WPI; 2002-130570/17.
XX
PT New immunostimulatory compositions comprising RNA/DNA hybrid
PT oligonucleotides, useful for enhancing an immune response or inducing
PT cytokines, particularly for treating diseases, e.g. cancer, allergy or
PT HIV infection -
XX
PS Example 11; Page 51; 68pp; English.
XX
CC The present invention relates to an immunostimulatory composition, which
CC comprises at least one oligonucleotide comprising both an RNA region and
CC a DNA region. The composition is useful for enhancing an immune response
CC or inducing cytokines. It can be used as a vaccine adjuvant and in
CC treating diseases, including pathogenic infection, (non-)malignant
CC tumours (e.g. cancers of the brain, lung, ovary, breast, prostate or
CC colon, or carcinomas and sarcomas), autoimmune diseases or allergies
CC (e.g. allergic rhinitis, hay fever or food allergies), Lyme disease,
CC hepatitis, HIV or malaria. The composition is also useful for treating,
CC preventing or ameliorating the symptoms resulting from exposure to a
CC bio-warfare agent, e.g. Ebola, Anthrax or Listeria. The present sequence
CC is an immunostimulatory oligonucleotide described in the exemplification
CC of the invention.
XX
SQ Sequence 20 BP; 2 A; 6 C; 6 G; 6 T; 0 other;

Query Match 100.0%; Score 20; DB 24; Length 20;
Best Local Similarity 100.0%; Pred. No. 2.7;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 TCCATGGCGGTCCTGATGCT 20
||||||||||||||||||||
Db 1 TCCATGGCGGTCCTGATGCT 20

RESULT 15
ABL35195
ID ABL35195 standard; DNA; 20 BP.
XX
AC ABL35195;
XX
DT 04-APR-2002 (first entry)
XX
DE Immunostimulatory oligonucleotide SEQ ID NO: 105.
XX
KW DNA/RNA hybrid; phosphorothioate backbone; immunostimulatory;
KW vaccine; infection; allergy; cancer; hypersensitivity; bio-warfare;
KW immunostimulant; antiallergic; cytostatic; antimicrobial; anti-HIV;
KW immunosuppressive; protozoacide; virucide; hepatotropic; gene therapy;
KW antiinflammatory; antibacterial; ss.
XX
OS Synthetic.
XX
FH Key Location/Qualifiers
FT misc_RNA 1..20
FT /*tag= a
FT /note= "optionally thymidine is replaced by uracil to
FT form RNA or DNA/RNA hybrids. Thymidine is linked to at
FT least one other base through a ribose sugar"
XX
PN WO200193902-A2.
XX
PD 13-DEC-2001.
XX
PF 07-JUN-2001; 2001WO-US18276.
XX
PR 07-JUN-2000; 2000US-209797P.
XX
PA (BIOS-) BIOSYNEXUS INC.
XX
PI Mond JJ, Flora M, Klinman DM;
XX
DR WPI; 2002-130570/17.
XX
PT New immunostimulatory compositions comprising RNA/DNA hybrid
PT oligonucleotides, useful for enhancing an immune response or inducing
PT cytokines, particularly for treating diseases, e.g. cancer, allergy or
PT HIV infection -
XX
PS Example 11; Page 52; 68pp; English.
XX
CC The present invention relates to an immunostimulatory composition, which
CC comprises at least one oligonucleotide comprising both an RNA region and
CC a DNA region. The composition is useful for enhancing an immune response
CC or inducing cytokines. It can be used as a vaccine adjuvant and in
CC treating diseases, including pathogenic infection, (non-)malignant
CC tumours (e.g. cancers of the brain, lung, ovary, breast, prostate or
CC colon, or carcinomas and sarcomas), autoimmune diseases or allergies
CC (e.g. allergic rhinitis, hay fever or food allergies), Lyme disease,
CC hepatitis, HIV or malaria. The composition is also useful for treating,
CC preventing or ameliorating the symptoms resulting from exposure to a
CC bio-warfare agent, e.g. Ebola, Anthrax or Listeria. The present sequence
CC is an immunostimulatory oligonucleotide described in the exemplification
CC of the invention.
XX
SQ Sequence 20 BP; 2 A; 6 C; 6 G; 6 T; 0 other;

Query Match 100.0%; Score 20; DB 24; Length 20;
Best Local Similarity 100.0%; Pred. No. 2.7;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 TCCATGGCGGTCCTGATGCT 20
||||||||||||||||||||
Db 1 TCCATGGCGGTCCTGATGCT 20

Search completed: March 1, 2003, 21:11:26
Job time : 148.25 secs

GenCore version 5.1.4_p5_4578


OM nucleic - nucleic search, using sw model

Run on: March 1, 2003, 20:23:56 ; Search time 363.75 Seconds
(without alignments)
1600.154 Million cell updates/sec

Title: US-09-818-918-39
Perfect score: 20
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Scoring table: IDENTITY_NUC
Gapop 10.0 , Gapext 1.0

Searched: 2054640 seqs, 14551402878 residues

Total number of hits satisfying chosen parameters: 4109280

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : GenEmbl:*
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2: gb_htg:*
3: gb_in:*
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37: em_htg_vrt:*
38: em_sy:*
39: em_htgo_hum:*
40: em_htgo_mus:*
41: em_htgo_other:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

| Result No. | Score | % Query Match | Length | DB | ID | Description |
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| 1 | 20 | 100.0 | 20 | 6 | AR140480 | AR140480 Sequence |
| 2 | 20 | 100.0 | 20 | 6 | AR146332 | AR146332 Sequence |
| 3 | 20 | 100.0 | 20 | 6 | AR154705 | AR154705 Sequence |
| 4 | 20 | 100.0 | 20 | 6 | AX104563 | AX104563 Sequence |
| 5 | 20 | 100.0 | 20 | 6 | AX105189 | AX105189 Sequence |
| 6 | 20 | 100.0 | 20 | 6 | AX351743 | AX351743 Sequence |
| 7 | 20 | 100.0 | 20 | 6 | AX351809 | AX351809 Sequence |
| 8 | 20 | 100.0 | 20 | 6 | AX351832 | AX351832 Sequence |
| 9 | 20 | 100.0 | 20 | 6 | AX351860 | AX351860 Sequence |
| 10 | 20 | 100.0 | 20 | 6 | AX351881 | AX351881 Sequence |
| 11 | 20 | 100.0 | 20 | 6 | AX351906 | AX351906 Sequence |
| 12 | 20 | 100.0 | 20 | 6 | AX352122 | AX352122 Sequence |
| 13 | 20 | 100.0 | 20 | 6 | AX352141 | AX352141 Sequence |
| 14 | 20 | 100.0 | 20 | 6 | AX355567 | AX355567 Sequence |
| 15 | 20 | 100.0 | 20 | 6 | AX455613 | AX455613 Sequence |
| 16 | 20 | 100.0 | 20 | 6 | AX465345 | AX465345 Sequence |
| 17 | 20 | 100.0 | 20 | 6 | BD009087 | BD009087 Immunosti |
| 18 | 20 | 100.0 | 21 | 6 | AX352007 | AX352007 Sequence |
| 19 | 20 | 100.0 | 21 | 6 | AX352026 | AX352026 Sequence |
| 20 | 20 | 100.0 | 22 | 6 | AX352045 | AX352045 Sequence |
| 21 | 20 | 100.0 | 25 | 6 | AX351927 | AX351927 Sequence |
| 22 | 20 | 100.0 | 26 | 6 | AX351750 | AX351750 Sequence |
| 23 | 20 | 100.0 | 28 | 6 | AX351771 | AX351771 Sequence |
| 24 | 20 | 100.0 | 28 | 6 | AX351790 | AX351790 Sequence |
| 25 | 20 | 100.0 | 28 | 6 | AX351948 | AX351948 Sequence |
| 26 | 20 | 100.0 | 28 | 6 | AX352084 | AX352084 Sequence |
| 27 | 20 | 100.0 | 28 | 6 | AX352103 | AX352103 Sequence |
| 28 | 20 | 100.0 | 33 | 6 | AX351988 | AX351988 Sequence |
| 29 | 20 | 100.0 | 33 | 6 | AX352180 | AX352180 Sequence |
| 30 | 20 | 100.0 | 34 | 6 | AX351969 | AX351969 Sequence |
| 31 | 20 | 100.0 | 37 | 6 | AX352065 | AX352065 Sequence |
| 32 | 20 | 100.0 | 40 | 6 | AX352159 | AX352159 Sequence |
| 33 | 20 | 100.0 | 40 | 6 | AX352160 | AX352160 Sequence |
| 34 | 18.4 | 92.0 | 20 | 6 | AR007456 | AR007456 Sequence |
| 35 | 18.4 | 92.0 | 20 | 6 | AR096706 | AR096706 Sequence |
| 36 | 18.4 | 92.0 | 20 | 6 | AR135050 | AR135050 Sequence |
| 37 | 18.4 | 92.0 | 20 | 6 | AR140472 | AR140472 Sequence |
| 38 | 18.4 | 92.0 | 20 | 6 | AR140474 | AR140474 Sequence |
| 39 | 18.4 | 92.0 | 20 | 6 | AR140475 | AR140475 Sequence |
| 40 | 18.4 | 92.0 | 20 | 6 | AR140478 | AR140478 Sequence |
| 41 | 18.4 | 92.0 | 20 | 6 | AR140479 | AR140479 Sequence |
| 42 | 18.4 | 92.0 | 20 | 6 | AR140481 | AR140481 Sequence |
| 43 | 18.4 | 92.0 | 20 | 6 | AR146310 | AR146310 Sequence |
| 44 | 18.4 | 92.0 | 20 | 6 | AR146311 | AR146311 Sequence |
| 45 | 18.4 | 92.0 | 20 | 6 | AR146330 | AR146330 Sequence |

ALIGNMENTS

RESULT 1
AR140480
LOCUS AR140480 20 bp DNA linear PAT 16-JUN-2001
DEFINITION Sequence 39 from patent US 6207646.
ACCESSION AR140480
VERSION AR140480.1 GI:14482976
KEYWORDS .
SOURCE Unknown.
ORGANISM Unknown.
Unclassified.
REFERENCE 1 (bases 1 to 20)
AUTHORS Krieg,A.M., Kline,J., Klinman,D. and Steinberg,A.D.
TITLE Immunostimulatory nucleic acid molecules
JOURNAL Patent: US 6207646-A 39 27-MAR-2001;
FEATURES Location/Qualifiers

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                     /organism="unknown"
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ORIGIN

  Query Match             100.0%;  Score 20;  DB 6;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 11;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGGCGGTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATGGCGGTCCTGATGCT 20


RESULT 2
AR146332
LOCUS       AR146332                 20 bp    DNA     linear   PAT 08-AUG-2001
DEFINITION  Sequence 44 from patent US 6218371.
ACCESSION   AR146332
VERSION     AR146332.1  GI:15109521
KEYWORDS    .
SOURCE      Unknown.
  ORGANISM  Unknown.
            Unclassified.
REFERENCE   1  (bases 1 to 20)
  AUTHORS   Krieg,A.M. and Weiner,G.
  TITLE     Methods and products for stimulating the immune system using
            immunotherapeutic oligonucleotides and cytokines
  JOURNAL   Patent: US 6218371-A 44 17-APR-2001;
FEATURES             Location/Qualifiers
     source          1. .20
                     /organism="unknown"
BASE COUNT        2 a      6 c      6 g      6 t
ORIGIN

  Query Match             100.0%;  Score 20;  DB 6;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 11;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGGCGGTCCTGATGCT 20
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Db      1 TCCATGGCGGTCCTGATGCT 20


RESULT 3
AR154705
LOCUS       AR154705                 20 bp    DNA     linear   PAT 08-AUG-2001
DEFINITION  Sequence 34 from patent US 6239116.
ACCESSION   AR154705
VERSION     AR154705.1  GI:15122758
KEYWORDS    .
SOURCE      Unknown.
  ORGANISM  Unknown.
            Unclassified.
REFERENCE   1  (bases 1 to 20)
  AUTHORS   Krieg,A.M. and Kline,J.N.
  TITLE     Immunostimulatory nucleic acid molecules
  JOURNAL   Patent: US 6239116-A 34 29-MAY-2001;
FEATURES             Location/Qualifiers
     source          1. .20
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BASE COUNT        2 a      6 c      6 g      6 t
ORIGIN

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  Best Local Similarity   100.0%;  Pred. No. 11;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGGCGGTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATGGCGGTCCTGATGCT 20


RESULT 4
AX104563
LOCUS       AX104563                 20 bp    DNA     linear   PAT 30-APR-2001
DEFINITION  Sequence 755 from Patent WO0122972.
ACCESSION   AX104563
VERSION     AX104563.1  GI:13920760
KEYWORDS    .
SOURCE      synthetic construct.
  ORGANISM  synthetic construct
            artificial sequences.
REFERENCE   1  (bases 1 to 20)
  AUTHORS   Krieg,A.M., Schetter,C. and Vollmer,J.C.
  TITLE     Immunostimulatory nucleic acids
  JOURNAL   Patent: WO 0122972-A 755 05-APR-2001;
            UNIVERSITY OF IOWA RESEARCH FOUNDATION (US) ; Coley Pharmaceutical
            GmbH (DE)
FEATURES             Location/Qualifiers
     source          1. .20
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                     /db_xref="taxon:32630"
BASE COUNT        2 a      6 c      6 g      6 t
ORIGIN

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  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGGCGGTCCTGATGCT 20
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Db      1 TCCATGGCGGTCCTGATGCT 20


RESULT 5
AX105189
LOCUS       AX105189                 20 bp    DNA     linear   PAT 30-APR-2001
DEFINITION  Sequence 88 from Patent WO0122990.
ACCESSION   AX105189
VERSION     AX105189.1  GI:13921339
KEYWORDS    .
SOURCE      synthetic construct.
  ORGANISM  synthetic construct
            artificial sequences.
REFERENCE   1  (bases 1 to 20)
  AUTHORS   Hartmann,G.D., Bratzler,R.L. and Krieg,A.U.
  TITLE     Methods related to immunostimulatory nucleic acid-induced
            interferon
  JOURNAL   Patent: WO 0122990-A 88 05-APR-2001;
            Coley Pharmaceutical Group, Inc. (US) ; UNIVERSITY OF IOWA RESEARCH
            FOUNDATION (US)
FEATURES             Location/Qualifiers
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                     /note="Synthetic Oligonucleotide"
BASE COUNT        2 a      6 c      6 g      6 t
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Db      1 TCCATGGCGGTCCTGATGCT 20


RESULT 6
AX351743
LOCUS       AX351743                 20 bp    DNA     linear   PAT 06-FEB-2002
DEFINITION  Sequence 39 from Patent WO0193902.
ACCESSION   AX351743
VERSION     AX351743.1  GI:18617026
KEYWORDS    .
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SOURCE      synthetic construct.
  ORGANISM  synthetic construct
            artificial sequences.
REFERENCE   1
  AUTHORS   Mond,J.J., Flora,M. and Klinman,D.M.
  TITLE     Immunostimulatory rna/dna hybrid molecules
  JOURNAL   Patent: WO 0193902-A 39 13-DEC-2001;
            Biosynexus Incorporated (US)
FEATURES             Location/Qualifiers
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BASE COUNT        2 a      6 c      6 g      6 t
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  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGGCGGTCCTGATGCT 20
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Db      1 TCCATGGCGGTCCTGATGCT 20


RESULT 7
AX351809
LOCUS       AX351809                 20 bp    DNA     linear   PAT 06-FEB-2002
DEFINITION  Sequence 105 from Patent WO0193902.
ACCESSION   AX351809
VERSION     AX351809.1  GI:18617092
KEYWORDS    .
SOURCE      synthetic construct.
  ORGANISM  synthetic construct
            artificial sequences.
REFERENCE   1
  AUTHORS   Mond,J.J., Flora,M. and Klinman,D.M.
  TITLE     Immunostimulatory rna/dna hybrid molecules
  JOURNAL   Patent: WO 0193902-A 105 13-DEC-2001;
            Biosynexus Incorporated (US)
FEATURES             Location/Qualifiers
     source          1. .20
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                     /db_xref="taxon:32630"
                     /note="Synthetic HDR"
BASE COUNT        2 a      6 c      6 g      6 t
ORIGIN

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  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGGCGGTCCTGATGCT 20
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Db      1 TCCATGGCGGTCCTGATGCT 20


RESULT 8
AX351832
LOCUS       AX351832                 20 bp    DNA     linear   PAT 06-FEB-2002
DEFINITION  Sequence 128 from Patent WO0193902.
ACCESSION   AX351832
VERSION     AX351832.1  GI:18617115
KEYWORDS    .
SOURCE      synthetic construct.
  ORGANISM  synthetic construct
            artificial sequences.
REFERENCE   1
  AUTHORS   Mond,J.J., Flora,M. and Klinman,D.M.
  TITLE     Immunostimulatory rna/dna hybrid molecules
  JOURNAL   Patent: WO 0193902-A 128 13-DEC-2001;
            Biosynexus Incorporated (US)
FEATURES             Location/Qualifiers
     source          1. .20
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                     /db_xref="taxon:32630"
                     /note="Synthetic HDR"
BASE COUNT        2 a      6 c      6 g      6 t
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Qy      1 TCCATGGCGGTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATGGCGGTCCTGATGCT 20


RESULT 9
AX351860
LOCUS       AX351860                 20 bp    DNA     linear   PAT 06-FEB-2002
DEFINITION  Sequence 156 from Patent WO0193902.
ACCESSION   AX351860
VERSION     AX351860.1  GI:18617143
KEYWORDS    .
SOURCE      synthetic construct.
  ORGANISM  synthetic construct
            artificial sequences.
REFERENCE   1
  AUTHORS   Mond,J.J., Flora,M. and Klinman,D.M.
  TITLE     Immunostimulatory rna/dna hybrid molecules
  JOURNAL   Patent: WO 0193902-A 156 13-DEC-2001;
            Biosynexus Incorporated (US)
FEATURES             Location/Qualifiers
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BASE COUNT        2 a      6 c      6 g      6 t
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Db      1 TCCATGGCGGTCCTGATGCT 20


RESULT 10
AX351881
LOCUS       AX351881                 20 bp    DNA     linear   PAT 06-FEB-2002
DEFINITION  Sequence 177 from Patent WO0193902.
ACCESSION   AX351881
VERSION     AX351881.1  GI:18617164
KEYWORDS    .
SOURCE      synthetic construct.
  ORGANISM  synthetic construct
            artificial sequences.
REFERENCE   1
  AUTHORS   Mond,J.J., Flora,M. and Klinman,D.M.
  TITLE     Immunostimulatory rna/dna hybrid molecules
  JOURNAL   Patent: WO 0193902-A 177 13-DEC-2001;
            Biosynexus Incorporated (US)
FEATURES             Location/Qualifiers
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                     /note="Synthetic HDR"
BASE COUNT        2 a      6 c      6 g      6 t
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Db      1 TCCATGGCGGTCCTGATGCT 20


RESULT 11
AX351906
LOCUS       AX351906                 20 bp    DNA     linear   PAT 06-FEB-2002
DEFINITION  Sequence 202 from Patent WO0193902.
ACCESSION   AX351906
VERSION     AX351906.1  GI:18617189
KEYWORDS    .
SOURCE      synthetic construct.
  ORGANISM  synthetic construct
            artificial sequences.
REFERENCE   1
  AUTHORS   Mond,J.J., Flora,M. and Klinman,D.M.
  TITLE     Immunostimulatory rna/dna hybrid molecules
  JOURNAL   Patent: WO 0193902-A 202 13-DEC-2001;
            Biosynexus Incorporated (US)
FEATURES             Location/Qualifiers
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                     /organism="synthetic construct"
                     /db_xref="taxon:32630"
                     /note="Synthetic HDR"
BASE COUNT        2 a      6 c      6 g      6 t
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RESULT 12
AX352122
LOCUS       AX352122                 20 bp    DNA     linear   PAT 06-FEB-2002
DEFINITION  Sequence 418 from Patent WO0193902.
ACCESSION   AX352122
VERSION     AX352122.1  GI:18617405
KEYWORDS    .
SOURCE      synthetic construct.
  ORGANISM  synthetic construct
            artificial sequences.
REFERENCE   1
  AUTHORS   Mond,J.J., Flora,M. and Klinman,D.M.
  TITLE     Immunostimulatory rna/dna hybrid molecules
  JOURNAL   Patent: WO 0193902-A 418 13-DEC-2001;
            Biosynexus Incorporated (US)
FEATURES             Location/Qualifiers
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                     /note="Synthetic HDR"
BASE COUNT        2 a      6 c      6 g      6 t
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Db      1 TCCATGGCGGTCCTGATGCT 20


RESULT 13
AX352141
LOCUS       AX352141                 20 bp    DNA     linear   PAT 06-FEB-2002
DEFINITION  Sequence 437 from Patent WO0193902.
ACCESSION   AX352141
VERSION     AX352141.1  GI:18617424
KEYWORDS    .
SOURCE      synthetic construct.
  ORGANISM  synthetic construct
            artificial sequences.
REFERENCE   1
  AUTHORS   Mond,J.J., Flora,M. and Klinman,D.M.
  TITLE     Immunostimulatory rna/dna hybrid molecules
  JOURNAL   Patent: WO 0193902-A 437 13-DEC-2001;
            Biosynexus Incorporated (US)
FEATURES             Location/Qualifiers
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                     /note="Synthetic HDR"
BASE COUNT        2 a      6 c      6 g      6 t
ORIGIN

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  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGGCGGTCCTGATGCT 20
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Db      1 TCCATGGCGGTCCTGATGCT 20


RESULT 14
AX355567
LOCUS       AX355567                 20 bp    DNA     linear   PAT 06-FEB-2002
DEFINITION  Sequence 595 from Patent WO0197843.
ACCESSION   AX355567
VERSION     AX355567.1  GI:18620235
KEYWORDS    .
SOURCE      synthetic construct.
  ORGANISM  synthetic construct
            artificial sequences.
REFERENCE   1
  AUTHORS   Weiner,G. and Hartmann,G.
  TITLE     Methods for enhancing antibody-induced cell lysis and treating
            cancer
  JOURNAL   Patent: WO 0197843-A 595 27-DEC-2001;
            UNIVERSITY OF IOWA RESEARCH FOUNDATION (US)
FEATURES             Location/Qualifiers
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                     /db_xref="taxon:32630"
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Db      1 TCCATGGCGGTCCTGATGCT 20


RESULT 15
AX455613
LOCUS       AX455613                 20 bp    DNA     linear   PAT 06-JUL-2002
DEFINITION  Sequence 90 from Patent WO0222809.
ACCESSION   AX455613
VERSION     AX455613.1  GI:21714681
KEYWORDS    .
SOURCE      synthetic construct.
  ORGANISM  synthetic construct
            artificial sequences.
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REFERENCE   1
  AUTHORS   Bauer,S., Lipford,G. and Wagner,H.
  TITLE     Process for high throughput screening of cpg-based
            immuno-agonist/antagonist
  JOURNAL   Patent: WO 0222809-A 90 21-MAR-2002;
            Coley Pharmaceutical GmbH (DE)
FEATURES             Location/Qualifiers
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                     /note="Synthetic oligonucleotide"
BASE COUNT        2 a      6 c      6 g      6 t
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Db       1 TCCATGGCGGTCCTGATGCT 20


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Title: US-09-818-918-39
Perfect score: 20
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Scoring table: IDENTITY_NUC
Gapop 10.0 , Gapext 1.0

Searched: 16154066 seqs, 8097743376 residues

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Listing first 45 summaries

Database : EST:*
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14: gb_est5:*
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18: em_gss_hum:*
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25: em_gss_other:*
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27: em_gss_rod:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

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| c | 4 | 18.4 | 92.0 | 484 | 13 | BI899835 | BI899835 ib66d01.y |
| c | 5 | 18.4 | 92.0 | 556 | 17 | AZ752416 | AZ752416 RPCI-24-6 |
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| c | 21 | 18.4 | 92.0 | 727 | 17 | AZ915252 | AZ915252 RPCI-24-1 |
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| | 23 | 18.4 | 92.0 | 737 | 17 | AZ901548 | AZ901548 RPCI-24-1 |
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| c | 30 | 18.4 | 92.0 | 768 | 13 | BG969699 | BG969699 602837468 |
| c | 31 | 18.4 | 92.0 | 774 | 13 | BG916385 | BG916385 602813946 |
| c | 32 | 18.4 | 92.0 | 778 | 17 | BH032359 | BH032359 RPCI-24-2 |
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| c | 36 | 18.4 | 92.0 | 797 | 13 | BI658696 | BI658696 603283655 |
| c | 37 | 18.4 | 92.0 | 801 | 12 | BF783184 | BF783184 602109214 |
| c | 38 | 18.4 | 92.0 | 806 | 13 | BI101616 | BI101616 602887427 |
| c | 39 | 18.4 | 92.0 | 809 | 12 | BF539247 | BF539247 602054715 |
| c | 40 | 18.4 | 92.0 | 811 | 17 | AZ735141 | AZ735141 RPCI-24-7 |
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| c | 42 | 18.4 | 92.0 | 819 | 13 | BI657815 | BI657815 603284621 |
| c | 43 | 18.4 | 92.0 | 820 | 13 | BI219515 | BI219515 602936588 |
| c | 44 | 18.4 | 92.0 | 822 | 13 | BI659988 | BI659988 603302278 |
| c | 45 | 18.4 | 92.0 | 831 | 13 | BI331582 | BI331582 602983107 |

ALIGNMENTS

RESULT 1
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LOCUS AA855652 70 bp mRNA linear EST 06-MAR-1998
DEFINITION vw70g01.r1 Stratagene mouse heart (#937316) Mus musculus cDNA clone IMAGE:1260336 5' similar to gb:M11301 Mouse (MOUSE);, mRNA sequence.
ACCESSION AA855652
VERSION AA855652.1 GI:2943190
KEYWORDS EST.
SOURCE house mouse.
ORGANISM Mus musculus
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
REFERENCE 1 (bases 1 to 70)
AUTHORS Marra,M., Hillier,L., Allen,M., Bowles,M., Dietrich,N., Dubuque,T., Geisel,S., Kucaba,T., Lacy,M., Le,M., Martin,J., Morris,M., Schellenberg,K., Steptoe,M., Tan,F., Underwood,K., Moore,B., Theising,B., Wylie,T., Lennon,G., Soares,B., Wilson,R. and Waterston,R.
TITLE The WashU-HHMI Mouse EST Project
JOURNAL Unpublished (1996)
COMMENT Contact: Marra M/Mouse EST Project
WashU-HHMI Mouse EST Project
Washington University School of MedicineP
4444 Forest Park Parkway, Box 8501, St. Louis, MO 63108
Tel: 314 286 1800
Fax: 314 286 1810
Email: mouseest@watson.wustl.edu
This clone is available royalty-free through LLNL ; contact the

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            IMAGE Consortium (info@image.llnl.gov) for further information.
            MGI:662888
            Seq primer: -28m13 rev1 ET from Amersham
            High quality sequence stop: 19.
FEATURES              Location/Qualifiers
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                      /clone_lib="Stratagene mouse heart (#937316)"
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                      /tissue_type="heart"
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                      /lab_host="SOLR (kanamycin resistant)"
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                      Average insert size: 1.0 kb; Uni-ZAP XR Vector; ~5'
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BASE COUNT       20 a     22 c     17 g     11 t
ORIGIN

  Query Match             92.0%;  Score 18.4;  DB 9;  Length 70;
  Best Local Similarity   95.0%;  Pred. No. 7.7e+02;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy       1 TCCATGGCGGTCCTGATGCT 20
           |||||| ||||||||||||||
Db      36 TCCATGTCGGTCCTGATGCT 17


RESULT 2
AA082589/c
LOCUS       AA082589                 97 bp    mRNA    linear   EST 23-DEC-1997
DEFINITION  zn23g09.r1 Stratagene neuroepithelium NT2RAMI 937234 Homo sapiens
            cDNA clone IMAGE:548320 5' similar to TR:G387484 G387484 POL
            PROTEIN ;, mRNA sequence.
ACCESSION   AA082589
VERSION     AA082589.1  GI:1624648
KEYWORDS    EST.
SOURCE      human.
  ORGANISM  Homo sapiens
            Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
            Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
REFERENCE   1  (bases 1 to 97)
  AUTHORS   Hillier,L., Lennon,G., Becker,M., Bonaldo,M.F., Chiapelli,B.,
            Chissoe,S., Dietrich,N., DuBuque,T., Favello,A., Gish,W., Hawkins
            ,M., Hultman,M., Kucaba,T., Lacy,M., Le,M., Le,N., Mardis,E., Moore
            ,B., Morris,M., Parsons,J., Prange,C., Rifkin,L., Rohlfing,T.,
            Schellenberg,K., Soares,M.B., Tan,F., Thierry-Meg,J., Trevaskis,E.,
            Underwood,K., Wohldmann,P., Waterston,R., Wilson,R. and Marra,M.
  TITLE     Generation and analysis of 280,000 human expressed sequence tags
  JOURNAL   Genome Res. 6 (9), 807-828 (1996)
  MEDLINE   97044478
COMMENT     Contact: Wilson RK
            Washington University School of Medicine
            4444 Forest Park Parkway, Box 8501, St. Louis, MO 63108
            Tel: 314 286 1800
            Fax: 314 286 1810
            Email: est@watson.wustl.edu
            WARNING: There is evidence that suggests that the 384-well parent
            plate of this clone contains both human and mouse derived clones.
            Thus, the origin of this clone is uncertain. This caution should be
            kept in mind should you use this clone.

            This clone is available royalty-free through LLNL ; contact the
            IMAGE Consortium (info@image.llnl.gov) for further information.
            Trace considered overall poor quality
            Possible reversed clone: similarity on wrong strand
            Seq primer: -28M13 rev2 from Amersham
            High quality sequence stop: 1.
FEATURES              Location/Qualifiers
     source           1. .97
                      /organism="Homo sapiens"
                      /db_xref="GDB:3926836"
                      /db_xref="taxon:9606"
                      /clone="IMAGE:548320"
                      /clone_lib="Stratagene neuroepithelium NT2RAMI 937234"
                      /dev_stage="Ntera-2/RA+MI neuroepithelial cells"
                      /lab_host="SOLR (kanamycin resistant)"
                      /note="Vector: pBluescript SK-; Site_1: EcoRI; Site_2:
                      XhoI; Cloned unidirectionally.  Primer: Oligo dT. NT2
                      (Ntera-2/c1.D1)  precursor cells induced with Retinoic
                      Acid for 1 week, followed by 3 weeks in mitotic inhibitors
                      (Replate #2). Average insert size: 1.1 kb; Uni-ZAP XR
                      Vector; ~5' adaptor sequence: 5' GAATTCGGCACGAG 3' ~3'
                      adaptor sequence: 5' CTCGAGTTTTTTTTTTTTTTTTT 3'"
BASE COUNT       24 a     31 c     23 g     11 t      8 others
ORIGIN

  Query Match             92.0%;  Score 18.4;  DB 9;  Length 97;
  Best Local Similarity   95.0%;  Pred. No. 8.1e+02;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy       1 TCCATGGCGGTCCTGATGCT 20
           |||||| ||||||||||||||
Db      44 TCCATGTCGGTCCTGATGCT 25


RESULT 3
AZ721917/c
LOCUS       AZ721917                 461 bp    DNA     linear   GSS 24-JAN-2001
DEFINITION  RPCI-24-140F5.TV RPCI-24 Mus musculus genomic clone RPCI-24-140F5,
            DNA sequence.
ACCESSION   AZ721917
VERSION     AZ721917.1  GI:12465080
KEYWORDS    GSS.
SOURCE      house mouse.
  ORGANISM  Mus musculus
            Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
            Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
REFERENCE   1  (bases 1 to 461)
  AUTHORS   Zhao,S., Nierman,W., Malek,J., Shatsman,S., Akinret,B., Levins,M.,
            Tsegaye,G., Geer,K., Krol,M., Shvartsbeyn,A., Gebregeorgis,E.,
            Russell,D., de Jong,P. and Fraser,C.M.
  TITLE     Mouse BAC End Sequences from Library RPCI-24
  JOURNAL   Unpublished (1999)
COMMENT     Contact: Shaying Zhao
            Department of Eukaryotic Genomics
            The Institute for Genomic Research
            9712 Medical Center Dr., Rockville, MD 20850, USA
            Tel: 301 838 0200
            Fax: 301 838 0208
            Email: szhao@tigr.org
            Clones are derived from the mouse BAC library RPCI-24. For BAC
            library availability, please contact Pieter de Jong
            (pdejong@mail.cho.org). Clones may be purchased from BACPAC
            Resources (http://www.chori.org/bacpac/orderingframe.htm). BAC end
            page: http://ww .tigr.org/tdb/bac_ends/mouse/bac_end_intro.html
            Plate: 140  row: F  column: 5
            Seq primer: T7
            Class: BAC ends.
FEATURES              Location/Qualifiers
     source           1. .461
                      /organism="Mus musculus"
                      /strain="C57BL/6J"
                      /db_xref="taxon:10090"
                      /clone="RPCI-24-140F5"
                      /clone_lib="RPCI-24"
                      /sex="Male"
                      /cell_type="Spleen/Brain"
                      /note="Vector: pTARBAC1; Site_1: BamH1; Site_2: BamH1;
                      RPCI-24 Mouse BAC Library produced by Pieter de Jong. The
                      library was  cloned in the pTARBAC1 cloning vector at the
```

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                BamH1 sites using MboI  partially digested male C57BL/6J
                DNA."
BASE COUNT      120 a    145 c    113 g     83 t
ORIGIN

  Query Match            92.0%;  Score 18.4;  DB 17;  Length 461;
  Best Local Similarity  95.0%;  Pred. No. 1e+03;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy      1 TCCATGGCGGTCCTGATGCT 20
          |||||| ||||||||||||||
Db    268 TCCATGTCGGTCCTGATGCT 249


RESULT 4
BI899835/c
LOCUS       BI899835                484 bp    mRNA    linear   EST 12-MAR-2002
DEFINITION  ib66d01.y1 Amplified Melton Mouse Islets 1 MIS1-A Mus musculus cDNA
            clone IMAGE:5651736 5' similar to SW:POL1_MOUSE P10400
            RETROVIRUS-RELATED POL POLYPROTEIN [CONTAINS: REVERSE TRANSCRIPTASE
            ;, mRNA sequence.
ACCESSION   BI899835
VERSION     BI899835.1  GI:16187789
KEYWORDS    EST.
SOURCE      house mouse.
  ORGANISM  Mus musculus
            Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
            Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
REFERENCE   1  (bases 1 to 484)
  AUTHORS   Melton,D., Brown,J., Kenty,G., Permutt,A., Lee,C., Kaestner,K.,
            Lemishka,I., Scearce,M., Brestelli,J., Gradwohl,G., Clifton,S.,
            Hillier,L., Marra,M., Pape,D., Wylie,T., Martin,J., Blistain,A.,
            Schmitt,A., Theising,B., Ritter,E., Ronko,I., Bennett,J., Cardenas
            ,M., Gibbons,M., McCann,R., Cole,R., Tsagareishvili,R., Williams,T.
            , Jackson,Y. and Bowers,Y.
  TITLE     Endocrine Pancreas Consortium
  JOURNAL   Unpublished (2000)
COMMENT     Contact: Douglas Melton, Klaus H. Kaestner, & Hiroshi Inoue
            Endocrine Pancreas Consortium
            Harvard University, Howard Hughes Medical Institute
            Dept of Molecular and Cellular Biology, 7 Divinity Ave, Cambridge,
            MA 02138
            Tel: 617-495-1812
            Fax: 617-495-8557
            Email: dmelton@biohp.harvard.edu
            Library was constructed by Dr. Douglas Melton DNA sequencing by:
            Washington University Genome Sequencing Center For information on
            obtaining a clone please contact: Juliana Brown
            (brown@fas.harvard.edu)
            MGI:1938062 This sequence now available from the IMAGE consortium,
            for clone orders contact: info@image.llnl.gov
            Seq primer: -40RP from Gibco
            High quality sequence stop: 431.
FEATURES             Location/Qualifiers
     source          1. .484
                     /organism="Mus musculus"
                     /strain="ICR"
                     /db_xref="taxon:10090"
                     /clone="IMAGE:5651736"
                     /clone_lib="Amplified Melton Mouse Islets 1 MIS1-A"
                     /sex="Male"
                     /tissue_type="Islets of Langerhans"
                     /dev_stage="Adult"
                     /lab_host="DH10B"
                     /note="Organ: Pancreas; Vector: pSPORT1; Site_1: Not 1;
                     Site_2: Sal 1; Library constructed using SuperScript
                     Plasmid Library kit (Life  Technologies). cDNA made by
                     oligo-dT priming. Size-selected by column  fractionation;
                     average insert size 0.91 kb. Amplified once on solid
                     support. cDNA Library Preparation: Guolin Chen. "
BASE COUNT      128 a    156 c    117 g     83 t
ORIGIN

  Query Match            92.0%;  Score 18.4;  DB 13;  Length 484;
  Best Local Similarity  95.0%;  Pred. No. 1e+03;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy      1 TCCATGGCGGTCCTGATGCT 20
          |||||| ||||||||||||||
Db    295 TCCATGTCGGTCCTGATGCT 276


RESULT 5
AZ752416/c
LOCUS       AZ752416                556 bp    DNA     linear   GSS 25-JAN-2001
DEFINITION  RPCI-24-66H16.TJ RPCI-24 Mus musculus genomic clone RPCI-24-66H16,
            DNA sequence.
ACCESSION   AZ752416
VERSION     AZ752416.1  GI:12537575
KEYWORDS    GSS.
SOURCE      house mouse.
  ORGANISM  Mus musculus
            Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
            Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
REFERENCE   1  (bases 1 to 556)
  AUTHORS   Zhao,S., Nierman,W., Malek,J., Shatsman,S., Akinret,B., Levins,M.,
            Tsegaye,G., Geer,K., Krol,M., Shvartsbeyn,A., Gebregeorgis,E.,
            Russell,D., de Jong,P. and Fraser,C.M.
  TITLE     Mouse BAC End Sequences from Library RPCI-24
  JOURNAL   Unpublished (1999)
COMMENT     Other_GSSs: RPCI-24-66H16.TV
            Contact: Shaying Zhao
            Department of Eukaryotic Genomics
            The Institute for Genomic Research
            9712 Medical Center Dr., Rockville, MD 20850, USA
            Tel: 301 838 0200
            Fax: 301 838 0208
            Email: szhao@tigr.org
            Clones are derived from the mouse BAC library RPCI-24. For BAC
            library availability, please contact Pieter de Jong
            (pdejong@mail.cho.org). Clones may be purchased from BACPAC
            Resources (http://www.chori.org/bacpac/orderingframe.htm). BAC end
            page: http://ww .tigr.org/tdb/bac_ends/mouse/bac_end_intro.html
            Plate: 66  row: H  column: 16
            Seq primer: SP6
            Class: BAC ends.
FEATURES             Location/Qualifiers
     source          1. .556
                     /organism="Mus musculus"
                     /strain="C57BL/6J"
                     /db_xref="taxon:10090"
                     /clone="RPCI-24-66H16"
                     /clone_lib="RPCI-24"
                     /sex="Male"
                     /cell_type="Spleen/Brain"
                     /note="Vector: pTARBAC1; Site_1: BamH1; Site_2: BamH1;
                     RPCI-24 Mouse BAC Library produced by Pieter de Jong. The
                     library was  cloned in the pTARBAC1 cloning vector at the
                     BamH1 sites using MboI  partially digested male C57BL/6J
                     DNA."
BASE COUNT      149 a    143 c    143 g     121 t
ORIGIN

  Query Match            92.0%;  Score 18.4;  DB 17;  Length 556;
  Best Local Similarity  95.0%;  Pred. No. 1e+03;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy      1 TCCATGGCGGTCCTGATGCT 20
          |||||| ||||||||||||||
Db     45 TCCATGTCGGTCCTGATGCT 26


RESULT 6
AZ023370
LOCUS       AZ023370                571 bp    DNA     linear   GSS 25-FEB-2000
DEFINITION  RPCI-23-301L21.TV RPCI-23 Mus musculus genomic clone RPCI-23-301L21
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          , DNA sequence.
ACCESSION   AZ023370
VERSION     AZ023370.1  GI:7098754
KEYWORDS    GSS.
SOURCE      house mouse.
  ORGANISM  Mus musculus
            Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
            Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
REFERENCE   1  (bases 1 to 571)
  AUTHORS   Zhao,S., Nierman,W., Feldblyum,T., Malek,J., Shatsman,S., Akinret
            ,B., Levins,M., Mcgann,S., Tsegaye,G., Geer,K., Krol,M., de Jong,P.
            and Fraser,C.M.
  TITLE     Mouse BAC End Sequences from Library RPCI-23
  JOURNAL   Unpublished (1999)
COMMENT     Other_GSSs: RPCI-23-301L21.TJ
            Contact: Shaying Zhao
            Department of Eukaryotic Genomics
            The Institute for Genomic Research
            9712 Medical Center Dr., Rockville, MD 20850, USA
            Tel: 301 838 0200
            Fax: 301 838 0208
            Email: szhao@tigr.org
            Clones are derived from the mouse BAC library RPCI-23. For BAC
            library availability, please contact Pieter de Jong
            (pieter@dejong.med.buffalo.edu). Clones may be purchased from
            BACPAC Resources (http://bacpac.med.buffalo.edu/orderingframe.htm)
            or from Resea ch Genetics (info@resgen.com). BAC end page:
            http://www.tigr.org/tdb/bac_ends/mouse/bac_end_intro.html
            Plate: 301  row: L  column: 21
            Seq primer: T7
            Class: BAC ends.
FEATURES             Location/Qualifiers
     source          1. .571
                     /organism="Mus musculus"
                     /strain="C57BL/6J"
                     /db_xref="taxon:10090"
                     /clone="RPCI-23-301L21"
                     /clone_lib="RPCI-23"
                     /sex="Female"
                     /lab_host="DH10B"
                     /note="Organ: Kidney/Brain; Vector: pBACe3.6; Site_1:
                     EcoRI; Site_2: EcoRI; Female C57BL/6J mouse kidney and/or
                     brain genomic DNA was isolated and  partially digested
                     with a combination of EcoRI and EcoRI Methylase.   Size
                     selected DNA was cloned into the pBACe3.6 vector at the
                     EcoRI  sites.  The ligation products were transformed into
                     DH10B  electrocompetent cells (BRL Life Technologies).  "
BASE COUNT      119 a    153 c    147 g    150 t      2 others
ORIGIN

  Query Match            92.0%;  Score 18.4;  DB 17;  Length 571;
  Best Local Similarity  95.0%;  Pred. No. 1e+03;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy      1 TCCATGGCGGTCCTGATGCT 20
          |||||| ||||||||||||||
Db    535 TCCATGTCGGTCCTGATGCT 554


RESULT 7
BM730295/c
LOCUS       BM730295                578 bp    mRNA    linear   EST 12-MAR-2002
DEFINITION  ih62g03.y1 Melton Mouse E16 5 Pancreas Library 2 M16B2 Mus musculus
            cDNA clone IMAGE:5681092 5' similar to SW:POL_MLVRK P31795 POL
            POLYPROTEIN [CONTAINS: PROTEASE ;, mRNA sequence.
ACCESSION   BM730295
VERSION     BM730295.1  GI:19051628
KEYWORDS    EST.
SOURCE      house mouse.
  ORGANISM  Mus musculus
            Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
            Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
REFERENCE   1  (bases 1 to 578)
  AUTHORS   Melton,D., Brown,J., Kenty,G., Permutt,A., Lee,C., Kaestner,K.,
            Lemishka,I., Sceарce,M., Brestelli,J., Gradwohl,G., Clifton,S.,
            Hillier,L., Marra,M., Pape,D., Wylie,T., Martin,J., Blistain,A.,
            Schmitt,A., Theising,B., Ritter,E., Ronko,I., Bennett,J., Cardenas
            ,M., Gibbons,M., McCann,R., Cole,R., Tsagareishvili,R., Williams,T.
            , Jackson,Y. and Bowers,Y.
  TITLE     Endocrine Pancreas Consortium
  JOURNAL   Unpublished (2000)
COMMENT     Other_ESTs: ih62g03.x1
            Contact: Douglas Melton, Klaus H. Kaestner, & Hiroshi Inoue
            Endocrine Pancreas Consortium
            Harvard University, Howard Hughes Medical Institute
            Dept of Molecular and Cellular Biology, 7 Divinity Ave, Cambridge,
            MA 02138
            Tel: 617-495-1812
            Fax: 617-495-8557
            Email: dmelton@biohp.harvard.edu
            Library was constructed by Dr. Douglas Melton DNA sequencing by:
            Washington University Genome Sequencing Center For information on
            obtaining a clone please contact: Juliana Brown
            (brown@fas.harvard.edu)
            MGI:1958970 This sequence now available from the IMAGE consortium,
            for clone orders contact: info@image.llnl.gov
            Seq primer: -40RP from Gibco
            High quality sequence stop: 432.
FEATURES             Location/Qualifiers
     source          1. .578
                     /organism="Mus musculus"
                     /strain="ICR"
                     /db_xref="taxon:10090"
                     /clone="IMAGE:5681092"
                     /clone_lib="Melton Mouse E16 5 Pancreas Library 2 M16B2"
                     /sex="Both"
                     /tissue_type="Total pancreas"
                     /dev_stage="Embryonic day 16.5"
                     /lab_host="TOP10"
                     /note="Organ: Pancreas; Vector: pBluescript II SK; Site_1:
                     NotI; Site_2: SalI; Library constructed using SuperScript
                     Plasmid Library kit (Life  Technologies). cDNA made by
                     oligo-dT priming.Size-selected by  column fractionation;
                     average insert size 1.06kb. Primary  library,
                     unamplified."
BASE COUNT      145 a    193 c    131 g    109 t
ORIGIN

  Query Match            92.0%;  Score 18.4;  DB 14;  Length 578;
  Best Local Similarity  95.0%;  Pred. No. 1e+03;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy      1 TCCATGGCGGTCCTGATGCT 20
          |||||| ||||||||||||||
Db    474 TCCATGTCGGTCCTGATGCT 455


RESULT 8
AZ985535
LOCUS       AZ985535                592 bp    DNA     linear   GSS 27-APR-2001
DEFINITION  2M0267K19F Mouse 10kb plasmid UUGC2M library Mus musculus genomic
            clone UUGC2M0267K19 F, DNA sequence.
ACCESSION   AZ985535
VERSION     AZ985535.1  GI:13856762
KEYWORDS    GSS.
SOURCE      house mouse.
  ORGANISM  Mus musculus
            Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
            Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
REFERENCE   1  (bases 1 to 592)
  AUTHORS   Dunn,D., Aoyagi,A., Barber,M., Beacorn,T., Duval,B., Hamil,C.,
            Islam,H., Longacre,S., Mahmoud,M., Meenen,E., Pedersen,T., Reilly
            ,M., Rose,M., Rose,R., Stokes,R., Tingey,A., von Niederhausern,A.
            and Wright,D.,Weiss,R.
  TITLE     Mouse whole genome scaffolding with paired end reads from 10kb
            plasmid inserts
```

```
  JOURNAL   Unpublished (2000)
COMMENT     Contact: Robert B. Weiss
            University of Utah Genome Center
            University of Utah
            Rm. 308, Biomedical Polymers Research Bldg., 20 S. 2030 E., SLC, UT
            84112, USA
            Tel: 801 585 5606
            Fax: 801 585 7177
            Email: ddunn@genetics.utah.edu
            Insert Length: 10000   Std Error: 0.00
            Plate: 0267  row: K  column: 19
            Seq primer: CGTTGTAAAACGACGGCCAGT
            Class: plasmid ends
            High quality sequence stop: 592.
FEATURES             Location/Qualifiers
     source          1. .592
                     /organism="Mus musculus"
                     /strain="C57BL/6J"
                     /db_xref="taxon:10090"
                     /clone="UUGC2M0267K19"
                     /clone_lib="Mouse 10kb plasmid UUGC2M library"
                     /sex="Female"
                     /lab_host="E. coli strain XL10-Gold, T1-resistant, F-"
                     /note="Vector: PWD42nv; Purified genomic DNA from M.
                     musculus C57BL/6J (female) was obtained  from the Jackson
                     Laboratory Mouse DNA Resource
                     (http://www.jax.org/resources/documents/dnares/). The DNA
                     was hydrodynamically sheared by repeated passage through a
                     0.005 inch orifice at constant velocity. The sheared DNA
                     was blunt end-repaired with T4 DNA polymerase and T4
                     polynucleotide kinase. Adaptor oligonucleotides were
                     ligated to the blunt ends in high  molar excess. The
                     adaptored DNA was purified and size-selected for a 9.5 to
                     10.5 kb range using preparative agarose gel
                     electrophoresis. Vector DNA was prepared from a derivative
                     of pWD42 (gi|4732114|gb|AF129072.1), a copy-number
                     inducible derivative of plasmid R1. The vector was ligated
                     with adaptors complementary to the insert adaptors and
                     purified. The sheared, adaptored mouse DNA was annealed to
                     adaptored vector DNA, and transformed into
                     chemically-competent E. coli XL10-Gold (Stratagene) cells
                     and selected for ampicillin resistance."
BASE COUNT      123 a    156 c    152 g    161 t
ORIGIN

  Query Match             92.0%;  Score 18.4;  DB 17;  Length 592;
  Best Local Similarity   95.0%;  Pred. No. 1e+03;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy       1 TCCATGGCGGTCCTGATGCT 20
           |||||| ||||||||||||||
Db     501 TCCATGTCGGTCCTGATGCT 520


RESULT 9
BI100477/c
LOCUS       BI100477                608 bp    mRNA    linear   EST 26-JUN-2001
DEFINITION  602886587F1 NCI_CGAP_Kid14 Mus musculus cDNA clone IMAGE:5042108
            5', mRNA sequence.
ACCESSION   BI100477
VERSION     BI100477.1  GI:14551370
KEYWORDS    EST.
SOURCE      house mouse.
  ORGANISM  Mus musculus
            Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
            Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
REFERENCE   1  (bases 1 to 608)
  AUTHORS   NIH-MGC http://mgc.nci.nih.gov/.
  TITLE     National Institutes of Health, Mammalian Gene Collection (MGC)
  JOURNAL   Unpublished (1999)
COMMENT     Contact: Robert Strausberg, Ph.D.
            Email: cgapbs-r@mail.nih.gov
            Tissue Procurement: Jeffrey E. Green, M.D.
            cDNA Library Preparation: Life Technologies, Inc.
            cDNA Library Arrayed by: The I.M.A.G.E. Consortium (LLNL)
            DNA Sequencing by: Incyte Genomics, Inc.
            Clone distribution: MGC clone distribution information can be
            found through the I.M.A.G.E. Consortium/LLNL at:
            http://image.llnl.gov
            Plate: LLAM11115  row: m  column: 21
            High quality sequence stop: 608.
FEATURES             Location/Qualifiers
     source          1. .608
                     /organism="Mus musculus"
                     /strain="FVB/N"
                     /db_xref="taxon:10090"
                     /clone="IMAGE:5042108"
                     /clone_lib="NCI_CGAP_Kid14"
                     /lab_host="DH10B (T1 phage-resistant)"
                     /note="Organ: kidney; Vector: pCMV-SPORT6; Site_1: NotI;
                     Site_2: SalI; Cloned unidirectionally.  Primer: Oligo dT.
                     Average insert size 1.75 kb. Constructed by Life
                     Technologies. Note: this is a NCI_CGAP Library. |"
BASE COUNT      145 a    202 c    152 g    109 t
ORIGIN

  Query Match             92.0%;  Score 18.4;  DB 13;  Length 608;
  Best Local Similarity   95.0%;  Pred. No. 1e+03;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy       1 TCCATGGCGGTCCTGATGCT 20
           |||||| ||||||||||||||
Db     427 TCCATGTCGGTCCTGATGCT 408


RESULT 10
BI330822/c
LOCUS       BI330822                630 bp    mRNA    linear   EST 30-JUL-2001
DEFINITION  602981204F1 NCI_CGAP_Li9 Mus musculus cDNA clone IMAGE:5134105 5',
            mRNA sequence.
ACCESSION   BI330822
VERSION     BI330822.1  GI:15015479
KEYWORDS    EST.
SOURCE      house mouse.
  ORGANISM  Mus musculus
            Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
            Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
REFERENCE   1  (bases 1 to 630)
  AUTHORS   NIH-MGC http://mgc.nci.nih.gov/.
  TITLE     National Institutes of Health, Mammalian Gene Collection (MGC)
  JOURNAL   Unpublished (1999)
COMMENT     Contact: Robert Strausberg, Ph.D.
            Email: cgapbs-r@mail.nih.gov
            Tissue Procurement: Jeffrey E. Green, M.D.
            cDNA Library Preparation: Life Technologies, Inc.
            cDNA Library Arrayed by: The I.M.A.G.E. Consortium (LLNL)
            DNA Sequencing by: Incyte Genomics, Inc.
            Clone distribution: MGC clone distribution information can be
            found through the I.M.A.G.E. Consortium/LLNL at:
            http://image.llnl.gov
            Plate: LLAM11329  row: g  column: 02
            High quality sequence stop: 630.
FEATURES             Location/Qualifiers
     source          1. .630
                     /organism="Mus musculus"
                     /strain="FVB/N"
                     /db_xref="taxon:10090"
                     /clone="IMAGE:5134105"
                     /clone_lib="NCI_CGAP_Li9"
                     /lab_host="DH10B (T1 phage-resistant)"
                     /note="Organ: liver; Vector: pCMV-SPORT6; Site_1: NotI;
                     Site_2: SalI; Cloned unidirectionally. Primer: Oligo dT.
                     Average insert size 1.9 kb. Constructed by Life
                     Technologies. Note: this is a NCI_CGAP Library."
BASE COUNT      151 a    204 c    156 g    119 t
ORIGIN
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  Query Match             92.0%;  Score 18.4;  DB 13;  Length 630;
  Best Local Similarity   95.0%;  Pred. No. 1.1e+03;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy      1 TCCATGGCGGTCCTGATGCT 20
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Db    449 TCCATGTCGGTCCTGATGCT 430


RESULT 11
BB654216/c
LOCUS       BB654216                636 bp    mRNA    linear   EST 26-OCT-2001
DEFINITION  BB654216 RIKEN full-length enriched, 2 days neonate thymus thymic
            cells Mus musculus cDNA clone C920004C08 5', mRNA sequence.
ACCESSION   BB654216
VERSION     BB654216.1  GI:16488044
KEYWORDS    EST.
SOURCE      house mouse.
  ORGANISM  Mus musculus
            Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
            Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
REFERENCE   1  (bases 1 to 636)
  AUTHORS   Arakawa,T., Carninci,P., Fukuda,S., Furuno,M., Hanagaki,T., Hara,A.
            , Hiramoto,K., Hori,F., Ishii,Y., Ito,M., Kawai,J., Konno,H., Kouda
            ,M., Koya,S., Matsuyama,T., Miyazaki,A., Nomura,K., Ohno,M.,
            Okazaki,Y., Okido,T., Saito,R., Sakai,C., Sakai,K., Sano,H., Sasaki
            ,D., Shibata,K., Shinagawa,A., Shiraki,T., Sogabe,Y., Suzuki,H.,
            Tagami,M., Tagawa,A., Takahashi,F., Takeda,Y., Tanaka,T., Toya,T.,
            Muramatsu,M. and Hayashizaki,Y.
  TITLE     RIKEN Mouse ESTs (Arakawa,T., et al. 2001)
  JOURNAL   Unpublished (2001)
COMMENT     Contact: Yoshihide Hayashizaki
            Laboratory for Genome Exploration Research Group, RIKEN Genomic
            Sciences Center(GSC), Yokohama Institute
            The Institute of Physical and Chemical Research (RIKEN)
            1-7-22 Suehiro-cho, Tsurumi-ku, Yokohama, Kanagawa 230-0045, Japan
            Tel: 81-45-503-9222
            Fax: 81-45-503-9216
            Email: genome-res@gsc.riken.go.jp,
            URL:http://genome.gsc.riken.go.jp/
            Carninci,P., Shibata,Y., Hayatsu,N., Sugahara,Y., Shibata,K., Itoh
            ,M., Konno,H., Okazaki,Y., Muramatsu,M. and Hayashizaki,Y.
             Normalization and subtraction of cap-trapper-selected cDNAs to
            prepare full-length cDNA libraries for rapid discovery of new
            genes. Genome Res. . 10 (10), 1617-1630 (2000)
             wagi,K., Fujiwake,S., Inoue,K., Togawa,Y., Izawa,M., Ohara,E.,
            Watahiki,M., Yoneda,Y., Ishikawa,T., Ozawa,K., Tanaka,T., Matsuura
            ,S., Kawai,J., Okazaki,Y., Muramatsu,M., Inoue,Y., Kira,A. and
            Hayashizaki,Y.
             RIKEN integrated sequence analysis (RISA) system--384-format
            sequencing pipeline with 384 multicapillary sequencer. Genome Res.
            10 (11), 1757-1771 (2000)
             Konno,H., Fukunishi,Y., Shibata,K., Itoh,M., Carninci,P., Sugahara
            ,Y. and Hayashizaki,Y.
             Computer-based methods for the mouse full-length cDNA
            encyclopedia: real-time sequence clustering for construction of a
            nonredundant cDNA library. Genome Res. . 11 (2), 281-289 (2001)
             Kondo,S., Shinagawa,A., Saito,T., Kiyosawa,H., Yamanaka,I., Aizawa
            ,K., Fukuda,S., Hara,A., Itoh,M., Kawai,J., Shibata,K. and
            Hayashizaki,Y.
             Computational Analysis of Full-Length Mouse cDNAs Compared with
            Human Genome Sequences. Mamm. Genome. 12, 673-677 (2001)
             Please visit our web site (http://genome.gsc.riken.go.jp) for
            further details.
             e mouse tissues.
FEATURES             Location/Qualifiers
     source          1. .636
                     /organism="Mus musculus"
                     /strain="C57BL/6J"
                     /db_xref="taxon:10090"
                     /clone="C920004C08"
                     /clone_lib="RIKEN full-length enriched, 2 days neonate
                     thymus thymic cells"
                     /tissue_type="thymus"
                     /cell_type="thymic cells"
                     /dev_stage="2 days neonate"
                     /note="Vector: pSPORT1; Site_1: SalI; Site_2: NotI; This
                     clone is among a rearrayed set of 15,247 clones from 11
                     embryo  cDNA libraries (including preimplantation stage
                     embryos from  unfertilized egg to blastocyst, embryonic
                     part of E7.5 embryos,  extraembryonic part of E7.5 embryos
                     , and E12.5 female mesonephros/gonad)  and one newborn
                     ovary cDNA library. Average insert size 1.5 kb. All
                     source libraries are cloned unidirectionally with Oligo(dT
                     )-Not primers.  References include: (1) Genome-wide
                     expression profiling of mid-gestation  placenta and embryo
                     using a 15,000 mouse developmental cDNA microarray,  2000,
                     Proc. Natl. Acad. Sci. U S A, 97: 9127-9132; (2)
                     Large-scale cDNA  analysis reveals phased gene expression
                     patterns during preimplantation  mouse develolpment, 2000,
                     Development, 127: 1737-1749; (3) Genome-wide  mapping of
                     unselected transcripts from extraembryonic tissue of
                     7.5-day  mouse embryos reveals enrichment in the t-complex
                     and under-representation  on the X chromosome, 1998, Hum
                     Mol Genet 7: 1967-1978."
BASE COUNT      176 a    188 c    146 g    125 t      1 others
ORIGIN

  Query Match             92.0%;  Score 18.4;  DB 10;  Length 636;
  Best Local Similarity   95.0%;  Pred. No. 1.1e+03;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy      1 TCCATGGCGGTCCTGATGCT 20
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Db    564 TCCATGTCGGTCCTGATGCT 545


RESULT 12
BG863609/c
LOCUS       BG863609                637 bp    mRNA    linear   EST 29-MAY-2001
DEFINITION  602796816F1 NCI_CGAP_Mam4 Mus musculus cDNA clone IMAGE:4918107 5',
            mRNA sequence.
ACCESSION   BG863609
VERSION     BG863609.1  GI:14214147
KEYWORDS    EST.
SOURCE      house mouse.
  ORGANISM  Mus musculus
            Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
            Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
REFERENCE   1  (bases 1 to 637)
  AUTHORS   NIH-MGC http://mgc.nci.nih.gov/.
  TITLE     National Institutes of Health, Mammalian Gene Collection (MGC)
  JOURNAL   Unpublished (1999)
COMMENT     Contact: Robert Strausberg, Ph.D.
            Email: cgapbs-r@mail.nih.gov
            Tissue Procurement: Lothar Hennighausen Ph.D., Priscilla Furth
            Ph.D.
             cDNA Library Preparation: Life Technologies, Inc.
             cDNA Library Arrayed by: The I.M.A.G.E. Consortium (LLNL)
             DNA Sequencing by: Incyte Genomics, Inc.
             Clone distribution: MGC clone distribution information can be
            found through the I.M.A.G.E. Consortium/LLNL at:
            http://image.llnl.gov
            Plate: LLAM10830  row: o  column: 04
            High quality sequence start: 3
            High quality sequence stop: 631.
FEATURES             Location/Qualifiers
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                     /organism="Mus musculus"
                     /strain="NMRI"
                     /db_xref="taxon:10090"
                     /clone="IMAGE:4918107"
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                     /tissue_type="tumor, gross tissue"
                     /dev_stage="5 months"
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/lab_host="DH10B"
/note="Organ: mammary; Vector: pCMV-SPORT6; Site_1: SalI; Site_2: NotI; Cloned unidirectionally. Primer: Oligo dT. Library constructed by Life Technologies. Investigators providing samples: Lothar Hennighausen/Priscilla Furth, NIH Reference for transgenic model: Li et al., Cell Growth and Differentiation 7, 3-11 (1996)."
BASE COUNT 178 a 196 c 141 g 122 t
ORIGIN

Query Match 92.0%; Score 18.4; DB 12; Length 637;
Best Local Similarity 95.0%; Pred. No. 1.1e+03;
Matches 19; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

Qy 1 TCCATGGCGGTCCTGATGCT 20
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Db 337 TCCATGTCGGTCCTGATGCT 318

RESULT 13
BI329902/c
LOCUS BI329902 638 bp mRNA linear EST 30-JUL-2001
DEFINITION 602980033F1 NCI_CGAP_Li9 Mus musculus cDNA clone IMAGE:5132817 5', mRNA sequence.
ACCESSION BI329902
VERSION BI329902.1 GI:15014559
KEYWORDS EST.
SOURCE house mouse.
ORGANISM Mus musculus
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
REFERENCE 1 (bases 1 to 638)
AUTHORS NIH-MGC http://mgc.nci.nih.gov/.
TITLE National Institutes of Health, Mammalian Gene Collection (MGC)
JOURNAL Unpublished (1999)
COMMENT Contact: Robert Strausberg, Ph.D.
Email: cgapbs-r@mail.nih.gov
Tissue Procurement: Jeffrey E. Green, M.D.
cDNA Library Preparation: Life Technologies, Inc.
cDNA Library Arrayed by: The I.M.A.G.E. Consortium (LLNL)
DNA Sequencing by: Incyte Genomics, Inc.
Clone distribution: MGC clone distribution information can be found through the I.M.A.G.E. Consortium/LLNL at:
http://image.llnl.gov
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High quality sequence stop: 638.
FEATURES Location/Qualifiers
source 1. .638
/organism="Mus musculus"
/strain="FVB/N"
/db_xref="taxon:10090"
/clone="IMAGE:5132817"
/clone_lib="NCI_CGAP_Li9"
/lab_host="DH10B (T1 phage-resistant)"
/note="Organ: liver; Vector: pCMV-SPORT6; Site_1: NotI; Site_2: SalI; Cloned unidirectionally. Primer: Oligo dT. Average insert size 1.9 kb. Constructed by Life Technologies. Note: this is a NCI_CGAP Library."
BASE COUNT 172 a 182 c 163 g 121 t
ORIGIN

Query Match 92.0%; Score 18.4; DB 13; Length 638;
Best Local Similarity 95.0%; Pred. No. 1.1e+03;
Matches 19; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

Qy 1 TCCATGGCGGTCCTGATGCT 20
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Db 167 TCCATGTCGGTCCTGATGCT 148

RESULT 14
BF299738/c
LOCUS BF299738 642 bp mRNA linear EST 21-NOV-2000
DEFINITION 602029243F1 NCI_CGAP_SG2 Mus musculus cDNA clone IMAGE:4164466 5', mRNA sequence.
ACCESSION BF299738
VERSION BF299738.1 GI:11246261
KEYWORDS EST.
SOURCE house mouse.
ORGANISM Mus musculus
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
REFERENCE 1 (bases 1 to 642)
AUTHORS NIH-MGC http://mgc.nci.nih.gov/.
TITLE National Institutes of Health, Mammalian Gene Collection (MGC)
JOURNAL Unpublished (1999)
COMMENT Contact: Robert Strausberg, Ph.D.
Email: cgapbs-r@mail.nih.gov
Tissue Procurement: Jeffrey E. Green, M.D.
cDNA Library Preparation: Life Technologies, Inc.
cDNA Library Arrayed by: The I.M.A.G.E. Consortium (LLNL)
DNA Sequencing by: Incyte Genomics, Inc.
Clone distribution: MGC clone distribution information can be found through the I.M.A.G.E. Consortium/LLNL at:
http://image.llnl.gov
Plate: LLAM9450 row: e column: 11
High quality sequence stop: 642.
FEATURES Location/Qualifiers
source 1. .642
/organism="Mus musculus"
/strain="FVB/N"
/db_xref="taxon:10090"
/clone="IMAGE:4164466"
/clone_lib="NCI_CGAP_SG2"
/lab_host="DH10B (T1 phage-resistant)"
/note="Organ: salivary gland; Vector: pCMV-SPORT6; Site_1: NotI; Site_2: SalI; Cloned unidirectionally. Primer: Oligo dT. Average insert size 1.3 kb. Constructed by Life Technologies. Note: this is a NCI_CGAP Library."
BASE COUNT 183 a 190 c 147 g 122 t
ORIGIN

Query Match 92.0%; Score 18.4; DB 12; Length 642;
Best Local Similarity 95.0%; Pred. No. 1.1e+03;
Matches 19; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

Qy 1 TCCATGGCGGTCCTGATGCT 20
||||||||||||||||||||
Db 298 TCCATGTCGGTCCTGATGCT 279

RESULT 15
BE368574/c
LOCUS BE368574 646 bp mRNA linear EST 21-JUL-2000
DEFINITION 601220573F1 NCI_CGAP_Lu29 Mus musculus cDNA clone IMAGE:3589170 5', mRNA sequence.
ACCESSION BE368574
VERSION BE368574.1 GI:9313846
KEYWORDS EST.
SOURCE house mouse.
ORGANISM Mus musculus
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
REFERENCE 1 (bases 1 to 646)
AUTHORS NIH-MGC http://mgc.nci.nih.gov/.
TITLE National Institutes of Health, Mammalian Gene Collection (MGC)
JOURNAL Unpublished (1999)
COMMENT Contact: Robert Strausberg, Ph.D.
Email: cgapbs-r@mail.nih.gov
Tissue Procurement: Gilbert Smith, Ph.D.
cDNA Library Preparation: Life Technologies, Inc.
cDNA Library Arrayed by: The I.M.A.G.E. Consortium (LLNL)
DNA Sequencing by: Incyte Genomics, Inc.
Clone distribution: MGC clone distribution information can be found through the I.M.A.G.E. Consortium/LLNL at:
http://image.llnl.gov

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           High quality sequence stop: 594.
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                     /strain="CZECH II"
                     /db_xref="taxon:10090"
                     /clone="IMAGE:3589170"
                     /clone_lib="NCI_CGAP_Lu29"
                     /tissue_type="spontaneous tumor, metastatic to mammary.
                     Stem cell origin."
                     /lab_host="DH10B"
                     /note="Organ: lung; Vector: pCMV-SPORT6; Site_1: SalI;
                     Site_2: NotI; Cloned unidirectionally.  Primer: Oligo dT.
                     Library constructed by Life Technologies. Investigator
                     providing samples: Gilbert Smith, NIH"
BASE COUNT      170 a    215 c    146 g    115 t
ORIGIN

  Query Match             92.0%;  Score 18.4;  DB 10;  Length 646;
  Best Local Similarity   95.0%;  Pred. No. 1.1e+03;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy       1 TCCATGGCGGTCCTGATGCT 20
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Db     526 TCCATGTCGGTCCTGATGCT 507


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GenCore version 5.1.4_p5_4578


OM nucleic - nucleic search, using sw model

Run on: March 1, 2003, 21:01:26 ; Search time 41.5 Seconds
(without alignments)
147.796 Million cell updates/sec

Title: US-09-818-918-39
Perfect score: 20
Sequence: 1 tccatggcggtcctgatgct 20

Scoring table: IDENTITY_NUC
Gapop 10.0 , Gapext 1.0

Searched: 441362 seqs, 153338381 residues

Total number of hits satisfying chosen parameters: 882724

Minimum DB seq length: 0
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Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

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Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

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| 1 | 20 | 100.0 | 20 | 4 | US-08-738-652-39 | Sequence 39, Appl |
| 2 | 20 | 100.0 | 20 | 4 | US-09-286-098-44 | Sequence 44, Appl |
| 3 | 20 | 100.0 | 20 | 4 | US-08-960-774-34 | Sequence 34, Appl |
| 4 | 20 | 100.0 | 20 | 4 | US-09-325-193A-37 | Sequence 37, Appl |
| 5 | 20 | 100.0 | 20 | 4 | US-09-191-170-39 | Sequence 39, Appl |
| 6 | 18.4 | 92.0 | 20 | 1 | US-08-436-714-7 | Sequence 7, Appli |
| 7 | 18.4 | 92.0 | 20 | 1 | US-08-442-705-7 | Sequence 7, Appli |
| 8 | 18.4 | 92.0 | 20 | 1 | US-08-332-829-7 | Sequence 7, Appli |
| 9 | 18.4 | 92.0 | 20 | 3 | US-08-386-063-21 | Sequence 21, Appl |
| 10 | 18.4 | 92.0 | 20 | 4 | US-08-386-063-21 | Sequence 21, Appl |
| 11 | 18.4 | 92.0 | 20 | 4 | US-08-738-652-31 | Sequence 31, Appl |
| 12 | 18.4 | 92.0 | 20 | 4 | US-08-738-652-33 | Sequence 33, Appl |
| 13 | 18.4 | 92.0 | 20 | 4 | US-08-738-652-34 | Sequence 34, Appl |
| 14 | 18.4 | 92.0 | 20 | 4 | US-08-738-652-37 | Sequence 37, Appl |
| 15 | 18.4 | 92.0 | 20 | 4 | US-08-738-652-38 | Sequence 38, Appl |
| 16 | 18.4 | 92.0 | 20 | 4 | US-08-738-652-40 | Sequence 40, Appl |
| 17 | 18.4 | 92.0 | 20 | 4 | US-09-286-098-22 | Sequence 22, Appl |
| 18 | 18.4 | 92.0 | 20 | 4 | US-09-286-098-23 | Sequence 23, Appl |
| 19 | 18.4 | 92.0 | 20 | 4 | US-09-286-098-42 | Sequence 42, Appl |
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| 23 | 18.4 | 92.0 | 20 | 4 | US-08-960-774-33 | Sequence 33, Appl |
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| 26 | 18.4 | 92.0 | 20 | 4 | US-08-960-774-102 | Sequence 102, App |
| 27 | 18.4 | 92.0 | 20 | 4 | US-09-325-193A-17 | Sequence 17, Appl |
| 28 | 18.4 | 92.0 | 20 | 4 | US-09-325-193A-18 | Sequence 18, Appl |
| 29 | 18.4 | 92.0 | 20 | 4 | US-09-325-193A-35 | Sequence 35, Appl |
| 30 | 18.4 | 92.0 | 20 | 4 | US-09-325-193A-36 | Sequence 36, Appl |
| 31 | 18.4 | 92.0 | 20 | 4 | US-09-325-193A-38 | Sequence 38, Appl |
| 32 | 18.4 | 92.0 | 20 | 4 | US-09-191-170-20 | Sequence 20, Appl |
| 33 | 18.4 | 92.0 | 20 | 4 | US-09-191-170-22 | Sequence 22, Appl |
| 34 | 18.4 | 92.0 | 20 | 4 | US-09-191-170-23 | Sequence 23, Appl |
| 35 | 18.4 | 92.0 | 20 | 4 | US-09-191-170-38 | Sequence 38, Appl |
| 36 | 18.4 | 92.0 | 20 | 4 | US-09-191-170-40 | Sequence 40, Appl |
| c 37 | 18.4 | 92.0 | 1237 | 1 | US-08-798-000-2 | Sequence 2, Appli |
| c 38 | 18.4 | 92.0 | 2002 | 4 | US-09-315-127-7 | Sequence 7, Appli |
| c 39 | 18.4 | 92.0 | 3925 | 4 | US-09-011-745-9 | Sequence 9, Appli |
| 40 | 18.4 | 92.0 | 8202 | 1 | US-08-258-420-13 | Sequence 13, Appl |
| 41 | 17.4 | 87.0 | 19 | 4 | US-09-286-098-20 | Sequence 20, Appl |
| 42 | 17.4 | 87.0 | 20 | 3 | US-08-386-063-23 | Sequence 23, Appl |
| 43 | 17.4 | 87.0 | 20 | 3 | US-08-386-063-24 | Sequence 24, Appl |
| 44 | 17.4 | 87.0 | 20 | 4 | US-08-386-063-23 | Sequence 23, Appl |
| 45 | 17.4 | 87.0 | 20 | 4 | US-08-386-063-24 | Sequence 24, Appl |

ALIGNMENTS

RESULT 1
US-08-738-652-39
; Sequence 39, Application US/08738652B
; Patent No. 6207646
; GENERAL INFORMATION:
; APPLICANT: Krieg, Arthur M.
; TITLE OF INVENTION: Immunostimulatory Nucleic Acid Molecules
; FILE REFERENCE: C1039/7004 HCL
; CURRENT APPLICATION NUMBER: US/08/738,652B
; CURRENT FILING DATE: 1996-10-30
; EARLIER APPLICATION NUMBER: US 08/276,358
; EARLIER FILING DATE: 1994-07-15
; EARLIER APPLICATION NUMBER: US 08/386,063
; EARLIER FILING DATE: 1995-02-07
; NUMBER OF SEQ ID NOS: 55
; SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 39
; LENGTH: 20
; TYPE: DNA
; ORGANISM: Artificial Sequence
; FEATURE:
; OTHER INFORMATION: Synthetic oligonucleotide
US-08-738-652-39

Query Match 100.0%; Score 20; DB 4; Length 20;
Best Local Similarity 100.0%; Pred. No. 1;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 TCCATGGCGGTCCTGATGCT 20
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Db 1 TCCATGGCGGTCCTGATGCT 20

RESULT 2
US-09-286-098-44
; Sequence 44, Application US/09286098
; Patent No. 6218371
; GENERAL INFORMATION:
; APPLICANT: Krieg, Arthur M.
; APPLICANT: Weiner, George
; TITLE OF INVENTION: Methods and Products for Stimulating the
; TITLE OF INVENTION: Immune System Using Immunotherapeutic Oligonucleotides and
; TITLE OF INVENTION: Cytokines
; FILE REFERENCE: C1039/7026/HCL
; CURRENT APPLICATION NUMBER: US/09/286,098
; CURRENT FILING DATE: 1999-04-02
; EARLIER APPLICATION NUMBER: US 60/080,729
; EARLIER FILING DATE: 1998-04-03
; NUMBER OF SEQ ID NOS: 105
; SOFTWARE: FastSEQ for Windows Version 3.0

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; SEQ ID NO 44
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic Sequence
US-09-286-098-44

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  Best Local Similarity   100.0%;  Pred. No. 1;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGGCGGTCCTGATGCT 20
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Db      1 TCCATGGCGGTCCTGATGCT 20


RESULT 3
US-08-960-774-34
; Sequence 34, Application US/08960774
; Patent No. 6239116
;  GENERAL INFORMATION:
;    APPLICANT:  Krieg et al.,
;    TITLE OF INVENTION:  IMMUNOSTIMULATORY NUCLEIC ACID MOLECULES
;    NUMBER OF SEQUENCES:  111
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Fish & Richardson P.C.
;      STREET:  4225 Executive Square, Suite 1400
;      CITY:  La Jolla
;      STATE:  CA
;      COUNTRY:  USA
;      ZIP:  92037
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  ASCII text
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/960,774
;      FILING DATE:  30-October-1997
;      CLASSIFICATION:  514
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  U.S. Serial No. 6239116  08/738,652
;      FILING DATE:  October 30, 1996
;      CLASSIFICATION:  514
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Haile, Lisa A.
;      REGISTRATION NUMBER:  38,347
;      REFERENCE/DOCKET NUMBER:  08918/012001
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  619/678-5070
;      TELEFAX:  619/678-5099
;  INFORMATION FOR SEQ ID NO:  34:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  20 base pairs
;      TYPE:  nucleic acid
;      STRANDEDNESS:  single
;      TOPOLOGY:  linear
;    MOLECULE TYPE:  cDNA
US-08-960-774-34

  Query Match             100.0%;  Score 20;  DB 4;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 1;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGGCGGTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATGGCGGTCCTGATGCT 20


RESULT 4
US-09-325-193A-37
; Sequence 37, Application US/09325193A
; Patent No. 6406705
; GENERAL INFORMATION:
;  APPLICANT:  Davis, Heather L.
;  APPLICANT:  Schorr, Joachim
;  APPLICANT:  Krieg, Arthur M.
;  TITLE OF INVENTION:  Use of Nucleic Acids Containing
;  TITLE OF INVENTION:  Unmethylated CpG Dinucleotide as an Adjuvant
;  FILE REFERENCE:  C1039/7025/HCL
;  CURRENT APPLICATION NUMBER: US/09/325,193A
;  CURRENT FILING DATE:  1999-06-03
;  PRIOR APPLICATION NUMBER:  US 09/154,614
;  PRIOR FILING DATE:  1998-09-16
;  PRIOR APPLICATION NUMBER:  PCT/US98/04703
;  PRIOR FILING DATE:  1998-03-10
;  PRIOR APPLICATION NUMBER:  US 60/040,376
;  PRIOR FILING DATE:  1997-03-10
;  NUMBER OF SEQ ID NOS:  98
;  SOFTWARE:  FastSEQ for Windows Version 3.0
; SEQ ID NO 37
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic Oligonucleotide
US-09-325-193A-37

  Query Match             100.0%;  Score 20;  DB 4;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 1;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGGCGGTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATGGCGGTCCTGATGCT 20


RESULT 5
US-09-191-170-39
; Sequence 39, Application US/09191170
; Patent No. 6429199
; GENERAL INFORMATION:
;  APPLICANT: Krieg, Arthur M.
;  APPLICANT: Hartmann, Gunther
;  TITLE OF INVENTION: Immunostimulatory Nucleic Acid Molecules
;  TITLE OF INVENTION: for Activating Dendritic Cells
;  FILE REFERENCE: C1039/7017
;  CURRENT APPLICATION NUMBER: US/09/191,170
;  CURRENT FILING DATE: 1998-11-13
;  EARLIER APPLICATION NUMBER: US 08/960,774
;  EARLIER FILING DATE: 1997-10-30
;  EARLIER APPLICATION NUMBER: US 08/738,652
;  EARLIER FILING DATE: 1996-10-30
;  EARLIER APPLICATION NUMBER: US 08/386,063
;  EARLIER FILING DATE: 1995-02-07
;  EARLIER APPLICATION NUMBER: US 08/276,358
;  EARLIER FILING DATE: 1994-07-15
;  NUMBER OF SEQ ID NOS: 99
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 39
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: synthetic oligonucleotide
US-09-191-170-39

  Query Match             100.0%;  Score 20;  DB 4;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 1;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGGCGGTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATGGCGGTCCTGATGCT 20
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RESULT 6
US-08-436-714-7
; Sequence 7, Application US/08436714
; Patent No. 5602244
;  GENERAL INFORMATION:
;    APPLICANT:  Marvin H. Caruthers et al
;    TITLE OF INVENTION:  Nucleoside and Polynucleotide
;    TITLE OF INVENTION:  Thiophosphoramidite and Phosphorodithioate Compounds and Proce
;    NUMBER OF SEQUENCES:  8
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Yahwak & Associates
;      STREET:  25 Skytop Drive
;      CITY:  Trumbull
;      STATE:  Connecticut
;      COUNTRY:  USA
;      ZIP:  06611
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  floppy disk
;      COMPUTER:  Macintosh
;      OPERATING SYSTEM:  MS-DOS
;      SOFTWARE:  Microsoft Word 4.0
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/436,714
;      FILING DATE:
;      CLASSIFICATION:  536
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  George M. Yahwak
;      REGISTRATION NUMBER:  26,824
;      REFERENCE/DOCKET NUMBER:  CU 311 BIGCIP
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  (203)268-1951
;      TELEFAX:  (203)268-1951
;  INFORMATION FOR SEQ ID NO:  7:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  20 base pairs
;      TYPE:  nucleic acid
;      STRANDEDNESS:  single
;      TOPOLOGY:  linear
;    MOLECULE TYPE:  DNA
US-08-436-714-7

  Query Match             92.0%;  Score 18.4;  DB 1;  Length 20;
  Best Local Similarity   95.0%;  Pred. No. 5.4;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy       1 TCCATGGCGGTCCTGATGCT 20
           |||||| ||||||||||||||
Db       1 TCCATGTCGGTCCTGATGCT 20


RESULT 7
US-08-442-705-7
; Sequence 7, Application US/08442705
; Patent No. 5684148
;  GENERAL INFORMATION:
;    APPLICANT:  Marvin H. Caruthers et al
;    TITLE OF INVENTION:  Nucleoside and Polynucleotide
;    TITLE OF INVENTION:  Thiophosphoramidite and Phosphorodithioate Compounds and Proce
;    NUMBER OF SEQUENCES:  8
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Yahwak & Associates
;      STREET:  25 Skytop Drive
;      CITY:  Trumbull
;      STATE:  Connecticut
;      COUNTRY:  USA
;      ZIP:  06611
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  floppy disk
;      COMPUTER:  Macintosh
;      OPERATING SYSTEM:  MS-DOS
;      SOFTWARE:  Microsoft Word 4.0
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/442,705
;      FILING DATE:
;      CLASSIFICATION:  536
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  George M. Yahwak
;      REGISTRATION NUMBER:  26,824
;      REFERENCE/DOCKET NUMBER:  CU 311 BIGCIP
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  (203)268-1951
;      TELEFAX:  (203)268-1951
;  INFORMATION FOR SEQ ID NO:  7:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  20 base pairs
;      TYPE:  nucleic acid
;      STRANDEDNESS:  single
;      TOPOLOGY:  linear
;    MOLECULE TYPE:  DNA
US-08-442-705-7

  Query Match             92.0%;  Score 18.4;  DB 1;  Length 20;
  Best Local Similarity   95.0%;  Pred. No. 5.4;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy       1 TCCATGGCGGTCCTGATGCT 20
           |||||| ||||||||||||||
Db       1 TCCATGTCGGTCCTGATGCT 20


RESULT 8
US-08-332-829-7
; Sequence 7, Application US/08332829
; Patent No. 5750666
;  GENERAL INFORMATION:
;    APPLICANT:  Marvin H. Caruthers et al
;    TITLE OF INVENTION:  Nucleoside and Polynucleotide
;    TITLE OF INVENTION:  Thiophosphoramidite and Phosphorodithioate Compounds and Pr
;    NUMBER OF SEQUENCES:  8
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Yahwak & Associates
;      STREET:  25 Skytop Drive
;      CITY:  Trumbull
;      STATE:  Connecticut
;      COUNTRY:  USA
;      ZIP:  06611
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  floppy disk
;      COMPUTER:  Macintosh
;      OPERATING SYSTEM:  MS-DOS
;      SOFTWARE:  Microsoft Word 4.0
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/332,829
;      FILING DATE:
;      CLASSIFICATION:  435
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  George M. Yahwak
;      REGISTRATION NUMBER:  26,824
;      REFERENCE/DOCKET NUMBER:  CU 311 BIGCIP
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  (203)268-1951
;      TELEFAX:  (203)268-1951
;  INFORMATION FOR SEQ ID NO:  7:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  20 base pairs
;      TYPE:  nucleic acid
;      STRANDEDNESS:  single
;      TOPOLOGY:  linear
;    MOLECULE TYPE:  DNA
US-08-332-829-7

  Query Match             92.0%;  Score 18.4;  DB 1;  Length 20;
  Best Local Similarity   95.0%;  Pred. No. 5.4;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;
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Qy      1 TCCATGGCGGTCCTGATGCT 20
          |||||| ||||||||||||||
Db      1 TCCATGTCGGTCCTGATGCT 20


RESULT 9
US-08-386-063-21
; Sequence 21, Application US/08386063
; Patent No. 6008200
;  GENERAL INFORMATION:
;    APPLICANT:  Arthur M. Krieg, M.D.
;    TITLE OF INVENTION:  IMMUNOMODULATORY OLIGONUCLEOTIDES
;    NUMBER OF SEQUENCES:  27
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  LAHIVE & COCKFIELD
;      STREET:  60 STATE STREET, SUITE 510
;      CITY:  BOSTON
;      STATE:  MASSACHUSETTS
;      COUNTRY:  USA
;      ZIP:  02109-1875
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  ASCII text
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/386,063
;      FILING DATE:
;      CLASSIFICATION:  424
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  ARNOLD, BETH E.
;      REGISTRATION NUMBER:  35,430
;      REFERENCE/DOCKET NUMBER:  UIZ-013CP
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  (617)227-7400
;      TELEFAX:  (617)227-5941
;  INFORMATION FOR SEQ ID NO:  21:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  20 base pairs
;      TYPE:  nucleic acid
;      STRANDEDNESS:  single
;      TOPOLOGY:  linear
;    MOLECULE TYPE:  DNA
US-08-386-063-21

  Query Match             92.0%;  Score 18.4;  DB 3;  Length 20;
  Best Local Similarity   95.0%;  Pred. No. 5.4;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy      1 TCCATGGCGGTCCTGATGCT 20
          |||||| ||||||||||||||
Db      1 TCCATGTCGGTCCTGATGCT 20


RESULT 10
US-08-386-063-21
; Sequence 21, Application US/08386063
; Patent No. 6194388
;  GENERAL INFORMATION:
;    APPLICANT:  Arthur M. Krieg, M.D.
;    TITLE OF INVENTION:  IMMUNOMODULATORY OLIGONUCLEOTIDES
;    NUMBER OF SEQUENCES:  27
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  LAHIVE & COCKFIELD
;      STREET:  60 STATE STREET, SUITE 510
;      CITY:  BOSTON
;      STATE:  MASSACHUSETTS
;      COUNTRY:  USA
;      ZIP:  02109-1875
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  ASCII text
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/386,063
;      FILING DATE:
;      CLASSIFICATION:
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  ARNOLD, BETH E.
;      REGISTRATION NUMBER:  35,430
;      REFERENCE/DOCKET NUMBER:  UIZ-013CP
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  (617)227-7400
;      TELEFAX:  (617)227-5941
;  INFORMATION FOR SEQ ID NO:  21:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  20 base pairs
;      TYPE:  nucleic acid
;      STRANDEDNESS:  single
;      TOPOLOGY:  linear
;    MOLECULE TYPE:  DNA
US-08-386-063-21

  Query Match             92.0%;  Score 18.4;  DB 4;  Length 20;
  Best Local Similarity   95.0%;  Pred. No. 5.4;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy      1 TCCATGGCGGTCCTGATGCT 20
          |||||| ||||||||||||||
Db      1 TCCATGTCGGTCCTGATGCT 20


RESULT 11
US-08-738-652-31
; Sequence 31, Application US/08738652B
; Patent No. 6207646
; GENERAL INFORMATION:
;  APPLICANT: Krieg, Arthur M.
;  TITLE OF INVENTION: Immunostimulatory Nucleic Acid Molecules
;  FILE REFERENCE: C1039/7004 HCL
;  CURRENT APPLICATION NUMBER: US/08/738,652B
;  CURRENT FILING DATE: 1996-10-30
;  EARLIER APPLICATION NUMBER: US 08/276,358
;  EARLIER FILING DATE: 1994-07-15
;  EARLIER APPLICATION NUMBER: US 08/386,063
;  EARLIER FILING DATE: 1995-02-07
;  NUMBER OF SEQ ID NOS: 55
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 31
;  LENGTH: 20
;  TYPE: DNA
;  ORGANISM: Artificial Sequence
;  FEATURE:
;  OTHER INFORMATION: Synthetic oligonucleotide
US-08-738-652-31

  Query Match             92.0%;  Score 18.4;  DB 4;  Length 20;
  Best Local Similarity   95.0%;  Pred. No. 5.4;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy      1 TCCATGGCGGTCCTGATGCT 20
          |||||| ||||||||||||||
Db      1 TCCATGTCGGTCCTGATGCT 20


RESULT 12
US-08-738-652-33
; Sequence 33, Application US/08738652B
; Patent No. 6207646
; GENERAL INFORMATION:
;  APPLICANT: Krieg, Arthur M.
;  TITLE OF INVENTION: Immunostimulatory Nucleic Acid Molecules
;  FILE REFERENCE: C1039/7004 HCL
;  CURRENT APPLICATION NUMBER: US/08/738,652B
;  CURRENT FILING DATE: 1996-10-30
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;  EARLIER APPLICATION NUMBER: US 08/276,358
;  EARLIER FILING DATE: 1994-07-15
;  EARLIER APPLICATION NUMBER: US 08/386,063
;  EARLIER FILING DATE: 1995-02-07
;  NUMBER OF SEQ ID NOS: 55
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 33
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic oligonucleotide
;   FEATURE:
;   NAME/KEY: modified_base
;   LOCATION: (8)...(8)
;   OTHER INFORMATION: m5c
US-08-738-652-33

  Query Match             92.0%;  Score 18.4;  DB 4;  Length 20;
  Best Local Similarity   95.0%;  Pred. No. 5.4;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy      1 TCCATGGCGGTCCTGATGCT 20
          |||||| ||||||||||||||
Db      1 TCCATGTCGGTCCTGATGCT 20


RESULT 13
US-08-738-652-34
; Sequence 34, Application US/08738652B
; Patent No. 6207646
; GENERAL INFORMATION:
;  APPLICANT: Krieg, Arthur M.
;  TITLE OF INVENTION: Immunostimulatory Nucleic Acid Molecules
;  FILE REFERENCE: C1039/7004 HCL
;  CURRENT APPLICATION NUMBER: US/08/738,652B
;  CURRENT FILING DATE: 1996-10-30
;  EARLIER APPLICATION NUMBER: US 08/276,358
;  EARLIER FILING DATE: 1994-07-15
;  EARLIER APPLICATION NUMBER: US 08/386,063
;  EARLIER FILING DATE: 1995-02-07
;  NUMBER OF SEQ ID NOS: 55
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 34
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic oligonucleotide
;   FEATURE:
;   NAME/KEY: modified_base
;   LOCATION: (12)...(12)
;   OTHER INFORMATION: m5c
US-08-738-652-34

  Query Match             92.0%;  Score 18.4;  DB 4;  Length 20;
  Best Local Similarity   95.0%;  Pred. No. 5.4;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy      1 TCCATGGCGGTCCTGATGCT 20
          |||||| ||||||||||||||
Db      1 TCCATGTCGGTCCTGATGCT 20


RESULT 14
US-08-738-652-37
; Sequence 37, Application US/08738652B
; Patent No. 6207646
; GENERAL INFORMATION:
;  APPLICANT: Krieg, Arthur M.
;  TITLE OF INVENTION: Immunostimulatory Nucleic Acid Molecules
;  FILE REFERENCE: C1039/7004 HCL
;  CURRENT APPLICATION NUMBER: US/08/738,652B
;  CURRENT FILING DATE: 1996-10-30
;  EARLIER APPLICATION NUMBER: US 08/276,358
;  EARLIER FILING DATE: 1994-07-15
;  EARLIER APPLICATION NUMBER: US 08/386,063
;  EARLIER FILING DATE: 1995-02-07
;  NUMBER OF SEQ ID NOS: 55
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 37
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic oligonucleotide
US-08-738-652-37

  Query Match             92.0%;  Score 18.4;  DB 4;  Length 20;
  Best Local Similarity   95.0%;  Pred. No. 5.4;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy      1 TCCATGGCGGTCCTGATGCT 20
          |||||| ||||||||||||||
Db      1 TCCATGTCGGTCCTGATGCT 20


RESULT 15
US-08-738-652-38
; Sequence 38, Application US/08738652B
; Patent No. 6207646
; GENERAL INFORMATION:
;  APPLICANT: Krieg, Arthur M.
;  TITLE OF INVENTION: Immunostimulatory Nucleic Acid Molecules
;  FILE REFERENCE: C1039/7004 HCL
;  CURRENT APPLICATION NUMBER: US/08/738,652B
;  CURRENT FILING DATE: 1996-10-30
;  EARLIER APPLICATION NUMBER: US 08/276,358
;  EARLIER FILING DATE: 1994-07-15
;  EARLIER APPLICATION NUMBER: US 08/386,063
;  EARLIER FILING DATE: 1995-02-07
;  NUMBER OF SEQ ID NOS: 55
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 38
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic oligonucleotide
US-08-738-652-38

  Query Match             92.0%;  Score 18.4;  DB 4;  Length 20;
  Best Local Similarity   95.0%;  Pred. No. 5.4;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy      1 TCCATGGCGGTCCTGATGCT 20
          |||||| ||||||||||||||
Db      1 TCCATGCCGGTCCTGATGCT 20


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Job time : 42.5 secs
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GenCore version 5.1.4_p5_4578


OM nucleic - nucleic search, using sw model

Run on: March 1, 2003, 21:03:21 ; Search time 44.25 Seconds
(without alignments)
281.862 Million cell updates/sec

Title: US-09-818-918-39
Perfect score: 20
Sequence: 1 tccatggcggtcctgatgct 20

Scoring table: IDENTITY_NUC
Gapop 10.0 , Gapext 1.0

Searched: 460893 seqs, 311809382 residues

Total number of hits satisfying chosen parameters: 921786

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : Published_Applications_NA:*
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2: /cgn2_6/ptodata/2/pubpna/PCT_NEW_PUB.seq:*
3: /cgn2_6/ptodata/2/pubpna/US06_NEW_PUB.seq:*
4: /cgn2_6/ptodata/2/pubpna/US06_PUBCOMB.seq:*
5: /cgn2_6/ptodata/2/pubpna/US07_NEW_PUB.seq:*
6: /cgn2_6/ptodata/2/pubpna/PCTUS_PUBCOMB.seq:*
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10: /cgn2_6/ptodata/2/pubpna/US09_PUBCOMB.seq:*
11: /cgn2_6/ptodata/2/pubpna/US10_NEW_PUB.seq:*
12: /cgn2_6/ptodata/2/pubpna/US10_PUBCOMB.seq:*
13: /cgn2_6/ptodata/2/pubpna/US60_NEW_PUB.seq:*
14: /cgn2_6/ptodata/2/pubpna/US60_PUBCOMB.seq:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

| Result No. | Score | % Query Match | Length | DB | ID | Description |
|---|---|---|---|---|---|---|
| 1 | 20 | 100.0 | 20 | 9 | US-09-800-266A-37 | Sequence 37, Appl |
| 2 | 20 | 100.0 | 20 | 9 | US-09-895-007A-37 | Sequence 37, Appl |
| 3 | 20 | 100.0 | 20 | 9 | US-10-023-909A-37 | Sequence 37, Appl |
| 4 | 20 | 100.0 | 20 | 9 | US-09-920-313-37 | Sequence 37, Appl |
| 5 | 20 | 100.0 | 20 | 9 | US-09-888-326-595 | Sequence 595, App |
| 6 | 20 | 100.0 | 20 | 10 | US-09-824-468-44 | Sequence 44, Appl |
| 7 | 18.4 | 92.0 | 20 | 9 | US-09-800-266A-17 | Sequence 17, Appl |
| 8 | 18.4 | 92.0 | 20 | 9 | US-09-800-266A-18 | Sequence 18, Appl |
| 9 | 18.4 | 92.0 | 20 | 9 | US-09-800-266A-35 | Sequence 35, Appl |
| 10 | 18.4 | 92.0 | 20 | 9 | US-09-800-266A-36 | Sequence 36, Appl |
| 11 | 18.4 | 92.0 | 20 | 9 | US-09-800-266A-38 | Sequence 38, Appl |
| 12 | 18.4 | 92.0 | 20 | 9 | US-09-800-266A-123 | Sequence 123, App |
| 13 | 18.4 | 92.0 | 20 | 9 | US-09-800-266A-124 | Sequence 124, App |
| 14 | 18.4 | 92.0 | 20 | 9 | US-09-895-007A-17 | Sequence 17, Appl |
| 15 | 18.4 | 92.0 | 20 | 9 | US-09-895-007A-18 | Sequence 18, Appl |
| 16 | 18.4 | 92.0 | 20 | 9 | US-09-895-007A-35 | Sequence 35, Appl |
| 17 | 18.4 | 92.0 | 20 | 9 | US-09-895-007A-36 | Sequence 36, Appl |
| 18 | 18.4 | 92.0 | 20 | 9 | US-09-895-007A-38 | Sequence 38, Appl |
| 19 | 18.4 | 92.0 | 20 | 9 | US-09-895-007A-123 | Sequence 123, App |
| 20 | 18.4 | 92.0 | 20 | 9 | US-09-895-007A-124 | Sequence 124, App |
| 21 | 18.4 | 92.0 | 20 | 9 | US-10-023-909A-17 | Sequence 17, Appl |
| 22 | 18.4 | 92.0 | 20 | 9 | US-10-023-909A-18 | Sequence 18, Appl |
| 23 | 18.4 | 92.0 | 20 | 9 | US-10-023-909A-35 | Sequence 35, Appl |
| 24 | 18.4 | 92.0 | 20 | 9 | US-10-023-909A-36 | Sequence 36, Appl |
| 25 | 18.4 | 92.0 | 20 | 9 | US-10-023-909A-38 | Sequence 38, Appl |
| 26 | 18.4 | 92.0 | 20 | 9 | US-09-920-313-17 | Sequence 17, Appl |
| 27 | 18.4 | 92.0 | 20 | 9 | US-09-920-313-18 | Sequence 18, Appl |
| 28 | 18.4 | 92.0 | 20 | 9 | US-09-920-313-35 | Sequence 35, Appl |
| 29 | 18.4 | 92.0 | 20 | 9 | US-09-920-313-36 | Sequence 36, Appl |
| 30 | 18.4 | 92.0 | 20 | 9 | US-09-920-313-38 | Sequence 38, Appl |
| 31 | 18.4 | 92.0 | 20 | 9 | US-09-920-313-123 | Sequence 123, App |
| 32 | 18.4 | 92.0 | 20 | 9 | US-09-920-313-124 | Sequence 124, App |
| 33 | 18.4 | 92.0 | 20 | 9 | US-09-415-142-21 | Sequence 21, Appl |
| c 34 | 18.4 | 92.0 | 20 | 9 | US-09-888-326-63 | Sequence 63, Appl |
| 35 | 18.4 | 92.0 | 20 | 9 | US-09-888-326-555 | Sequence 555, App |
| 36 | 18.4 | 92.0 | 20 | 9 | US-09-888-326-585 | Sequence 585, App |
| 37 | 18.4 | 92.0 | 20 | 9 | US-09-888-326-603 | Sequence 603, App |
| 38 | 18.4 | 92.0 | 20 | 9 | US-09-888-326-604 | Sequence 604, App |
| 39 | 18.4 | 92.0 | 20 | 10 | US-09-466-320-24 | Sequence 24, Appl |
| 40 | 18.4 | 92.0 | 20 | 10 | US-09-824-468-22 | Sequence 22, Appl |
| 41 | 18.4 | 92.0 | 20 | 10 | US-09-824-468-23 | Sequence 23, Appl |
| 42 | 18.4 | 92.0 | 20 | 10 | US-09-824-468-42 | Sequence 42, Appl |
| 43 | 18.4 | 92.0 | 20 | 10 | US-09-824-468-43 | Sequence 43, Appl |
| 44 | 18.4 | 92.0 | 20 | 10 | US-09-824-468-45 | Sequence 45, Appl |
| 45 | 17.4 | 87.0 | 19 | 9 | US-09-888-326-162 | Sequence 162, App |

ALIGNMENTS

RESULT 1
US-09-800-266A-37
; Sequence 37, Application US/09800266A
; Patent No. US20020156033A1
; GENERAL INFORMATION:
; APPLICANT: Bratzler, Robert L.
; APPLICANT: Petersen, Deanna M.
; TITLE OF INVENTION: Immunostimulatory Nucleic Acids and
; TITLE OF INVENTION: Cancer Medicament Combination Therapy for the Treatment of
; TITLE OF INVENTION: Cancer
; FILE REFERENCE: C1037/7017(HCL/MAT)
; CURRENT APPLICATION NUMBER: US/09/800,266A
; CURRENT FILING DATE: 2001-03-05
; PRIOR APPLICATION NUMBER: US 60/187,214
; PRIOR FILING DATE: 2000-03-03
; NUMBER OF SEQ ID NOS: 146
; SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 37
; LENGTH: 20
; TYPE: DNA
; ORGANISM: Artificial Sequence
; FEATURE:
; OTHER INFORMATION: Synthetic Sequence
US-09-800-266A-37

Query Match 100.0%; Score 20; DB 9; Length 20;
Best Local Similarity 100.0%; Pred. No. 1.7;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 TCCATGGCGGTCCTGATGCT 20
||||||||||||||||||||
Db 1 TCCATGGCGGTCCTGATGCT 20

RESULT 2
US-09-895-007A-37
; Sequence 37, Application US/09895007A
; Patent No. US20020165178A1
; GENERAL INFORMATION:
; APPLICANT: Schetter, Christian
; APPLICANT: Bratzler, Robert L.
; APPLICANT: Petersen, Deanna M.

```
;  TITLE OF INVENTION: IMMUNOSTIMULATORY NUCLEIC ACIDS FOR THE
;  TITLE OF INVENTION:  TREATMENT OF ANEMIA, THROMBOCYTOPENIA, AND NEUTROPENIA
;  FILE REFERENCE: C1041/7014 (AWS)
;  CURRENT APPLICATION NUMBER: US/09/895,007A
;  CURRENT FILING DATE:  2001-06-28
;  PRIOR APPLICATION NUMBER: US 60/214,368
;  PRIOR FILING DATE: 2000-06-28
;  NUMBER OF SEQ ID NOS: 133
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 37
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic oligonucleotide
US-09-895-007A-37

  Query Match             100.0%;  Score 20;  DB 9;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 1.7;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGGCGGTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATGGCGGTCCTGATGCT 20


RESULT 3
US-10-023-909A-37
; Sequence 37, Application US/10023909A
; Patent No. US20020164341A1
; GENERAL INFORMATION:
;  APPLICANT: Davis, Heather L.
;  APPLICANT:  Schorr, Joachim
;  APPLICANT:  Krieg, Arthur M.
;  TITLE OF INVENTION: Use of Nucleic Acids Containing
;  TITLE OF INVENTION:  Unmethylated CpG Dinucleotide as an Adjuvant
;  FILE REFERENCE: C1039/7058/HCL
;  CURRENT APPLICATION NUMBER: US/10/023,909A
;  CURRENT FILING DATE:  2001-12-18
;  PRIOR APPLICATION NUMBER: US 09/325,193
;  PRIOR FILING DATE: 1999-06-03
;  PRIOR APPLICATION NUMBER: US 09/154,614
;  PRIOR FILING DATE: 1998-09-16
;  PRIOR APPLICATION NUMBER: PCT/US98/04703
;  PRIOR FILING DATE: 1998-03-10
;  PRIOR APPLICATION NUMBER: US 60/040,376
;  PRIOR FILING DATE: 1997-03-10
;  NUMBER OF SEQ ID NOS: 98
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 37
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic Oligonucleotide
US-10-023-909A-37

  Query Match             100.0%;  Score 20;  DB 9;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 1.7;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGGCGGTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATGGCGGTCCTGATGCT 20


RESULT 4
US-09-920-313-37
; Sequence 37, Application US/09920313
; Publication No. US20020198165A1
; GENERAL INFORMATION:
;  APPLICANT: Bratzler, Robert L.
;  APPLICANT:  Petersen, Deanna M.
;  TITLE OF INVENTION: Nucleic Acids for the Prevention and
;  TITLE OF INVENTION:  Treatment of Gastric Ulcers
;  FILE REFERENCE: C1037/7019 (HCL/MAT)
;  CURRENT APPLICATION NUMBER: US/09/920,313
;  CURRENT FILING DATE:  2001-08-01
;  PRIOR APPLICATION NUMBER: US 60/222,248
;  PRIOR FILING DATE: 2001-08-08
;  NUMBER OF SEQ ID NOS: 148
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 37
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic Sequence
US-09-920-313-37

  Query Match             100.0%;  Score 20;  DB 9;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 1.7;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGGCGGTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATGGCGGTCCTGATGCT 20


RESULT 5
US-09-888-326-595
; Sequence 595, Application US/09888326
; Publication No. US20030026801A1
; GENERAL INFORMATION:
;  APPLICANT: Weiner, George
;  APPLICANT:  Hartmann, Gunther
;  TITLE OF INVENTION: Methods for Enhancing Antibody-Induced
;  TITLE OF INVENTION:  Cell Lysis and Treating Cancer
;  FILE REFERENCE: C1039/7052 (AWS)
;  CURRENT APPLICATION NUMBER: US/09/888,326
;  CURRENT FILING DATE:  2001-06-22
;  PRIOR APPLICATION NUMBER: US 60/213,346
;  PRIOR FILING DATE: 2000-06-22
;  NUMBER OF SEQ ID NOS: 848
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 595
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic oligonucleotide
;   NAME/KEY: misc_feature
;   LOCATION: (0)...(0)
;   OTHER INFORMATION: phosphodiester backbone
US-09-888-326-595

  Query Match             100.0%;  Score 20;  DB 9;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 1.7;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGGCGGTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATGGCGGTCCTGATGCT 20


RESULT 6
US-09-824-468-44
; Sequence 44, Application US/09824468
; Patent No. US20020064515A1
; GENERAL INFORMATION:
;  APPLICANT: Krieg, Arthur M.
;  APPLICANT:  Weiner, George
;  TITLE OF INVENTION: Methods and Products for Stimulating the
;  TITLE OF INVENTION:  Immune System Using Immunotherapeutic Oligonucleotides and
;  TITLE OF INVENTION:  Cytokines
;  FILE REFERENCE: C1039/7026/HCL
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;  CURRENT APPLICATION NUMBER: US/09/824,468
;  CURRENT FILING DATE:  2001-04-02
;  PRIOR APPLICATION NUMBER: 09/286,098
;  PRIOR FILING DATE: 1999-04-02
;  NUMBER OF SEQ ID NOS: 105
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 44
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic Sequence
US-09-824-468-44

  Query Match             100.0%;  Score 20;  DB 10;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 1.7;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGGCGGTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATGGCGGTCCTGATGCT 20


RESULT 7
US-09-800-266A-17
; Sequence 17, Application US/09800266A
; Patent No. US20020156033A1
; GENERAL INFORMATION:
;  APPLICANT: Bratzler, Robert L.
;  APPLICANT:  Petersen, Deanna M.
;  TITLE OF INVENTION: Immunostimulatory Nucleic Acids and
;  TITLE OF INVENTION:  Cancer Medicament Combination Therapy for the Treatment of
;  TITLE OF INVENTION:  Cancer
;  FILE REFERENCE: C1037/7017(HCL/MAT)
;  CURRENT APPLICATION NUMBER: US/09/800,266A
;  CURRENT FILING DATE:  2001-03-05
;  PRIOR APPLICATION NUMBER: US 60/187,214
;  PRIOR FILING DATE: 2000-03-03
;  NUMBER OF SEQ ID NOS: 146
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 17
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic Sequence
US-09-800-266A-17

  Query Match             92.0%;  Score 18.4;  DB 9;  Length 20;
  Best Local Similarity   95.0%;  Pred. No. 9.1;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy      1 TCCATGGCGGTCCTGATGCT 20
          ||||||  |||||||||||||
Db      1 TCCATGTCGGTCCTGATGCT 20


RESULT 8
US-09-800-266A-18
; Sequence 18, Application US/09800266A
; Patent No. US20020156033A1
; GENERAL INFORMATION:
;  APPLICANT: Bratzler, Robert L.
;  APPLICANT:  Petersen, Deanna M.
;  TITLE OF INVENTION: Immunostimulatory Nucleic Acids and
;  TITLE OF INVENTION:  Cancer Medicament Combination Therapy for the Treatment of
;  TITLE OF INVENTION:  Cancer
;  FILE REFERENCE: C1037/7017(HCL/MAT)
;  CURRENT APPLICATION NUMBER: US/09/800,266A
;  CURRENT FILING DATE:  2001-03-05
;  PRIOR APPLICATION NUMBER: US 60/187,214
;  PRIOR FILING DATE: 2000-03-03
;  NUMBER OF SEQ ID NOS: 146
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 18
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic Sequence
US-09-800-266A-18

  Query Match             92.0%;  Score 18.4;  DB 9;  Length 20;
  Best Local Similarity   95.0%;  Pred. No. 9.1;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy      1 TCCATGGCGGTCCTGATGCT 20
          ||||||  |||||||||||||
Db      1 TCCATGTCGGTCCTGATGCT 20


RESULT 9
US-09-800-266A-35
; Sequence 35, Application US/09800266A
; Patent No. US20020156033A1
; GENERAL INFORMATION:
;  APPLICANT: Bratzler, Robert L.
;  APPLICANT:  Petersen, Deanna M.
;  TITLE OF INVENTION: Immunostimulatory Nucleic Acids and
;  TITLE OF INVENTION:  Cancer Medicament Combination Therapy for the Treatment of
;  TITLE OF INVENTION:  Cancer
;  FILE REFERENCE: C1037/7017(HCL/MAT)
;  CURRENT APPLICATION NUMBER: US/09/800,266A
;  CURRENT FILING DATE:  2001-03-05
;  PRIOR APPLICATION NUMBER: US 60/187,214
;  PRIOR FILING DATE: 2000-03-03
;  NUMBER OF SEQ ID NOS: 146
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 35
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic Sequence
US-09-800-266A-35

  Query Match             92.0%;  Score 18.4;  DB 9;  Length 20;
  Best Local Similarity   95.0%;  Pred. No. 9.1;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy      1 TCCATGGCGGTCCTGATGCT 20
          ||||||  |||||||||||||
Db      1 TCCATGTCGGTCCTGATGCT 20


RESULT 10
US-09-800-266A-36
; Sequence 36, Application US/09800266A
; Patent No. US20020156033A1
; GENERAL INFORMATION:
;  APPLICANT: Bratzler, Robert L.
;  APPLICANT:  Petersen, Deanna M.
;  TITLE OF INVENTION: Immunostimulatory Nucleic Acids and
;  TITLE OF INVENTION:  Cancer Medicament Combination Therapy for the Treatment of
;  TITLE OF INVENTION:  Cancer
;  FILE REFERENCE: C1037/7017(HCL/MAT)
;  CURRENT APPLICATION NUMBER: US/09/800,266A
;  CURRENT FILING DATE:  2001-03-05
;  PRIOR APPLICATION NUMBER: US 60/187,214
;  PRIOR FILING DATE: 2000-03-03
;  NUMBER OF SEQ ID NOS: 146
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 36
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
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;   FEATURE:
;   OTHER INFORMATION: Synthetic Sequence
US-09-800-266A-36

  Query Match             92.0%;  Score 18.4;  DB 9;  Length 20;
  Best Local Similarity   95.0%;  Pred. No. 9.1;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy      1 TCCATGGCGGTCCTGATGCT 20
          ||||||| ||||||||||||
Db      1 TCCATGCCGGTCCTGATGCT 20


RESULT 11
US-09-800-266A-38
; Sequence 38, Application US/09800266A
; Patent No. US20020156033A1
; GENERAL INFORMATION:
;  APPLICANT: Bratzler, Robert L.
;  APPLICANT:  Petersen, Deanna M.
;  TITLE OF INVENTION: Immunostimulatory Nucleic Acids and
;  TITLE OF INVENTION:  Cancer Medicament Combination Therapy for the Treatment of
;  TITLE OF INVENTION:  Cancer
;  FILE REFERENCE: C1037/7017(HCL/MAT)
;  CURRENT APPLICATION NUMBER: US/09/800,266A
;  CURRENT FILING DATE:  2001-03-05
;  PRIOR APPLICATION NUMBER: US 60/187,214
;  PRIOR FILING DATE: 2000-03-03
;  NUMBER OF SEQ ID NOS: 146
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 38
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic Sequence
US-09-800-266A-38

  Query Match             92.0%;  Score 18.4;  DB 9;  Length 20;
  Best Local Similarity   95.0%;  Pred. No. 9.1;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy      1 TCCATGGCGGTCCTGATGCT 20
          ||||||| ||||||||||||
Db      1 TCCATGACGGTCCTGATGCT 20


RESULT 12
US-09-800-266A-123
; Sequence 123, Application US/09800266A
; Patent No. US20020156033A1
; GENERAL INFORMATION:
;  APPLICANT: Bratzler, Robert L.
;  APPLICANT:  Petersen, Deanna M.
;  TITLE OF INVENTION: Immunostimulatory Nucleic Acids and
;  TITLE OF INVENTION:  Cancer Medicament Combination Therapy for the Treatment of
;  TITLE OF INVENTION:  Cancer
;  FILE REFERENCE: C1037/7017(HCL/MAT)
;  CURRENT APPLICATION NUMBER: US/09/800,266A
;  CURRENT FILING DATE:  2001-03-05
;  PRIOR APPLICATION NUMBER: US 60/187,214
;  PRIOR FILING DATE: 2000-03-03
;  NUMBER OF SEQ ID NOS: 146
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 123
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic Sequence
US-09-800-266A-123

  Query Match             92.0%;  Score 18.4;  DB 9;  Length 20;
  Best Local Similarity   95.0%;  Pred. No. 9.1;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy      1 TCCATGGCGGTCCTGATGCT 20
          ||||||| ||||||||||||
Db      1 TCCATGGGGGTCCTGATGCT 20


RESULT 13
US-09-800-266A-124
; Sequence 124, Application US/09800266A
; Patent No. US20020156033A1
; GENERAL INFORMATION:
;  APPLICANT: Bratzler, Robert L.
;  APPLICANT:  Petersen, Deanna M.
;  TITLE OF INVENTION: Immunostimulatory Nucleic Acids and
;  TITLE OF INVENTION:  Cancer Medicament Combination Therapy for the Treatment of
;  TITLE OF INVENTION:  Cancer
;  FILE REFERENCE: C1037/7017(HCL/MAT)
;  CURRENT APPLICATION NUMBER: US/09/800,266A
;  CURRENT FILING DATE:  2001-03-05
;  PRIOR APPLICATION NUMBER: US 60/187,214
;  PRIOR FILING DATE: 2000-03-03
;  NUMBER OF SEQ ID NOS: 146
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 124
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic Sequence
US-09-800-266A-124

  Query Match             92.0%;  Score 18.4;  DB 9;  Length 20;
  Best Local Similarity   95.0%;  Pred. No. 9.1;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy      1 TCCATGGCGGTCCTGATGCT 20
          ||||||| ||||||||||||
Db      1 TCCATGGGGGTCCTGATGCT 20


RESULT 14
US-09-895-007A-17
; Sequence 17, Application US/09895007A
; Patent No. US20020165178A1
; GENERAL INFORMATION:
;  APPLICANT: Schetter, Christian
;  APPLICANT:  Bratzler, Robert L.
;  APPLICANT:  Petersen, Deanna M.
;  TITLE OF INVENTION: IMMUNOSTIMULATORY NUCLEIC ACIDS FOR THE
;  TITLE OF INVENTION:  TREATMENT OF ANEMIA, THROMBOCYTOPENIA, AND NEUTROPENIA
;  FILE REFERENCE: C1041/7014 (AWS)
;  CURRENT APPLICATION NUMBER: US/09/895,007A
;  CURRENT FILING DATE:  2001-06-28
;  PRIOR APPLICATION NUMBER: US 60/214,368
;  PRIOR FILING DATE: 2000-06-28
;  NUMBER OF SEQ ID NOS: 133
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 17
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic oligonucleotide
US-09-895-007A-17

  Query Match             92.0%;  Score 18.4;  DB 9;  Length 20;
  Best Local Similarity   95.0%;  Pred. No. 9.1;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy      1 TCCATGGCGGTCCTGATGCT 20
          ||||||| ||||||||||||
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```
Db      1 TCCATGTCGGTCCTGATGCT 20


RESULT 15
US-09-895-007A-18
; Sequence 18, Application US/09895007A
; Patent No. US20020165178A1
; GENERAL INFORMATION:
;  APPLICANT: Schetter, Christian
;  APPLICANT:  Bratzler, Robert L.
;  APPLICANT:  Petersen, Deanna M.
;  TITLE OF INVENTION: IMMUNOSTIMULATORY NUCLEIC ACIDS FOR THE
;  TITLE OF INVENTION:  TREATMENT OF ANEMIA, THROMBOCYTOPENIA, AND NEUTROPENIA
;  FILE REFERENCE: C1041/7014 (AWS)
;  CURRENT APPLICATION NUMBER: US/09/895,007A
;  CURRENT FILING DATE:  2001-06-28
;  PRIOR APPLICATION NUMBER: US 60/214,368
;  PRIOR FILING DATE: 2000-06-28
;  NUMBER OF SEQ ID NOS: 133
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 18
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic oligonucleotide
US-09-895-007A-18

  Query Match             92.0%;  Score 18.4;  DB 9;  Length 20;
  Best Local Similarity   95.0%;  Pred. No. 9.1;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy      1 TCCATGGCGGTCCTGATGCT 20
          |||||| ||||||||||||||
Db      1 TCCATGTCGGTCCTGATGCT 20


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Job time : 45.25 secs
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GenCore version 5.1.4_p5_4578


OM nucleic - nucleic search, using sw model

Run on: March 1, 2003, 21:36:01 ; Search time 358.25 Seconds
(without alignments)
1624.720 Million cell updates/sec

Title: US-09-818-918-39
Perfect score: 20
Sequence: 1 tccatggcggtcctgatgct 20

Scoring table: IDENTITY_NUC
Gapop 10.0 , Gapext 1.0

Searched: 2054640 seqs, 14551402878 residues

Total number of hits satisfying chosen parameters: 995600

Minimum DB seq length: 0
Maximum DB seq length: 100

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

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41: em_htgo_other:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

| Result No. | Score | % Query Match | Length | DB | ID | Description |
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| 1 | 20 | 100.0 | 20 | 6 | AR140480 | AR140480 Sequence |
| 2 | 20 | 100.0 | 20 | 6 | AR146332 | AR146332 Sequence |
| 3 | 20 | 100.0 | 20 | 6 | AR154705 | AR154705 Sequence |
| 4 | 20 | 100.0 | 20 | 6 | AX104563 | AX104563 Sequence |
| 5 | 20 | 100.0 | 20 | 6 | AX105189 | AX105189 Sequence |
| 6 | 20 | 100.0 | 20 | 6 | AX351743 | AX351743 Sequence |
| 7 | 20 | 100.0 | 20 | 6 | AX351809 | AX351809 Sequence |
| 8 | 20 | 100.0 | 20 | 6 | AX351832 | AX351832 Sequence |
| 9 | 20 | 100.0 | 20 | 6 | AX351860 | AX351860 Sequence |
| 10 | 20 | 100.0 | 20 | 6 | AX351881 | AX351881 Sequence |
| 11 | 20 | 100.0 | 20 | 6 | AX351906 | AX351906 Sequence |
| 12 | 20 | 100.0 | 20 | 6 | AX352122 | AX352122 Sequence |
| 13 | 20 | 100.0 | 20 | 6 | AX352141 | AX352141 Sequence |
| 14 | 20 | 100.0 | 20 | 6 | AX355567 | AX355567 Sequence |
| 15 | 20 | 100.0 | 20 | 6 | AX455613 | AX455613 Sequence |
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| 18 | 20 | 100.0 | 21 | 6 | AX352007 | AX352007 Sequence |
| 19 | 20 | 100.0 | 21 | 6 | AX352026 | AX352026 Sequence |
| 20 | 20 | 100.0 | 22 | 6 | AX352045 | AX352045 Sequence |
| 21 | 20 | 100.0 | 25 | 6 | AX351927 | AX351927 Sequence |
| 22 | 20 | 100.0 | 26 | 6 | AX351750 | AX351750 Sequence |
| 23 | 20 | 100.0 | 28 | 6 | AX351771 | AX351771 Sequence |
| 24 | 20 | 100.0 | 28 | 6 | AX351790 | AX351790 Sequence |
| 25 | 20 | 100.0 | 28 | 6 | AX351948 | AX351948 Sequence |
| 26 | 20 | 100.0 | 28 | 6 | AX352084 | AX352084 Sequence |
| 27 | 20 | 100.0 | 28 | 6 | AX352103 | AX352103 Sequence |
| 28 | 20 | 100.0 | 33 | 6 | AX351988 | AX351988 Sequence |
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| 30 | 20 | 100.0 | 34 | 6 | AX351969 | AX351969 Sequence |
| 31 | 20 | 100.0 | 37 | 6 | AX352065 | AX352065 Sequence |
| 32 | 20 | 100.0 | 40 | 6 | AX352159 | AX352159 Sequence |
| 33 | 20 | 100.0 | 40 | 6 | AX352160 | AX352160 Sequence |
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| 35 | 18.4 | 92.0 | 20 | 6 | AR096706 | AR096706 Sequence |
| 36 | 18.4 | 92.0 | 20 | 6 | AR135050 | AR135050 Sequence |
| 37 | 18.4 | 92.0 | 20 | 6 | AR140472 | AR140472 Sequence |
| 38 | 18.4 | 92.0 | 20 | 6 | AR140474 | AR140474 Sequence |
| 39 | 18.4 | 92.0 | 20 | 6 | AR140475 | AR140475 Sequence |
| 40 | 18.4 | 92.0 | 20 | 6 | AR140478 | AR140478 Sequence |
| 41 | 18.4 | 92.0 | 20 | 6 | AR140479 | AR140479 Sequence |
| 42 | 18.4 | 92.0 | 20 | 6 | AR140481 | AR140481 Sequence |
| 43 | 18.4 | 92.0 | 20 | 6 | AR146310 | AR146310 Sequence |
| 44 | 18.4 | 92.0 | 20 | 6 | AR146311 | AR146311 Sequence |
| 45 | 18.4 | 92.0 | 20 | 6 | AR146330 | AR146330 Sequence |

ALIGNMENTS

RESULT 1
AR140480
LOCUS AR140480 20 bp DNA linear PAT 16-JUN-2001
DEFINITION Sequence 39 from patent US 6207646.
ACCESSION AR140480
VERSION AR140480.1 GI:14482976
KEYWORDS .
SOURCE Unknown.
ORGANISM Unknown.
Unclassified.
REFERENCE 1 (bases 1 to 20)
AUTHORS Krieg,A.M., Kline,J., Klinman,D. and Steinberg,A.D.
TITLE Immunostimulatory nucleic acid molecules
JOURNAL Patent: US 6207646-A 39 27-MAR-2001;
FEATURES Location/Qualifiers

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Db      1 TCCATGGCGGTCCTGATGCT 20


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LOCUS       AR146332                 20 bp    DNA     linear   PAT 08-AUG-2001
DEFINITION  Sequence 44 from patent US 6218371.
ACCESSION   AR146332
VERSION     AR146332.1  GI:15109521
KEYWORDS    .
SOURCE      Unknown.
  ORGANISM  Unknown.
            Unclassified.
REFERENCE   1  (bases 1 to 20)
  AUTHORS   Krieg,A.M. and Weiner,G.
  TITLE     Methods and products for stimulating the immune system using
            immunotherapeutic oligonucleotides and cytokines
  JOURNAL   Patent: US 6218371-A 44 17-APR-2001;
FEATURES             Location/Qualifiers
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Db      1 TCCATGGCGGTCCTGATGCT 20


RESULT 3
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LOCUS       AR154705                 20 bp    DNA     linear   PAT 08-AUG-2001
DEFINITION  Sequence 34 from patent US 6239116.
ACCESSION   AR154705
VERSION     AR154705.1  GI:15122758
KEYWORDS    .
SOURCE      Unknown.
  ORGANISM  Unknown.
            Unclassified.
REFERENCE   1  (bases 1 to 20)
  AUTHORS   Krieg,A.M. and Kline,J.N.
  TITLE     Immunostimulatory nucleic acid molecules
  JOURNAL   Patent: US 6239116-A 34 29-MAY-2001;
FEATURES             Location/Qualifiers
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Db      1 TCCATGGCGGTCCTGATGCT 20


RESULT 4
AX104563
LOCUS       AX104563                 20 bp    DNA     linear   PAT 30-APR-2001
DEFINITION  Sequence 755 from Patent WO0122972.
ACCESSION   AX104563
VERSION     AX104563.1  GI:13920760
KEYWORDS    .
SOURCE      synthetic construct.
  ORGANISM  synthetic construct
            artificial sequences.
REFERENCE   1  (bases 1 to 20)
  AUTHORS   Krieg,A.M., Schetter,C. and Vollmer,J.C.
  TITLE     Immunostimulatory nucleic acids
  JOURNAL   Patent: WO 0122972-A 755 05-APR-2001;
            UNIVERSITY OF IOWA RESEARCH FOUNDATION (US) ; Coley Pharmaceutical
            GmbH (DE)
FEATURES             Location/Qualifiers
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BASE COUNT        2 a      6 c      6 g      6 t
ORIGIN

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Db      1 TCCATGGCGGTCCTGATGCT 20


RESULT 5
AX105189
LOCUS       AX105189                 20 bp    DNA     linear   PAT 30-APR-2001
DEFINITION  Sequence 88 from Patent WO0122990.
ACCESSION   AX105189
VERSION     AX105189.1  GI:13921339
KEYWORDS    .
SOURCE      synthetic construct.
  ORGANISM  synthetic construct
            artificial sequences.
REFERENCE   1  (bases 1 to 20)
  AUTHORS   Hartmann,G.D., Bratzler,R.L. and Krieg,A.U.
  TITLE     Methods related to immunostimulatory nucleic acid-induced
            interferon
  JOURNAL   Patent: WO 0122990-A 88 05-APR-2001;
            Coley Pharmaceutical Group, Inc. (US) ; UNIVERSITY OF IOWA RESEARCH
            FOUNDATION (US)
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Db      1 TCCATGGCGGTCCTGATGCT 20


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LOCUS       AX351743                 20 bp    DNA     linear   PAT 06-FEB-2002
DEFINITION  Sequence 39 from Patent WO0193902.
ACCESSION   AX351743
VERSION     AX351743.1  GI:18617026
KEYWORDS    .
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SOURCE      synthetic construct.
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            artificial sequences.
REFERENCE   1
  AUTHORS   Mond,J.J., Flora,M. and Klinman,D.M.
  TITLE     Immunostimulatory rna/dna hybrid molecules
  JOURNAL   Patent: WO 0193902-A 39 13-DEC-2001;
            Biosynexus Incorporated (US)
FEATURES             Location/Qualifiers
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Db      1 TCCATGGCGGTCCTGATGCT 20


RESULT 7
AX351809
LOCUS       AX351809                  20 bp    DNA     linear   PAT 06-FEB-2002
DEFINITION  Sequence 105 from Patent WO0193902.
ACCESSION   AX351809
VERSION     AX351809.1  GI:18617092
KEYWORDS    .
SOURCE      synthetic construct.
  ORGANISM  synthetic construct
            artificial sequences.
REFERENCE   1
  AUTHORS   Mond,J.J., Flora,M. and Klinman,D.M.
  TITLE     Immunostimulatory rna/dna hybrid molecules
  JOURNAL   Patent: WO 0193902-A 105 13-DEC-2001;
            Biosynexus Incorporated (US)
FEATURES             Location/Qualifiers
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Db      1 TCCATGGCGGTCCTGATGCT 20


RESULT 8
AX351832
LOCUS       AX351832                  20 bp    DNA     linear   PAT 06-FEB-2002
DEFINITION  Sequence 128 from Patent WO0193902.
ACCESSION   AX351832
VERSION     AX351832.1  GI:18617115
KEYWORDS    .
SOURCE      synthetic construct.
  ORGANISM  synthetic construct
            artificial sequences.
REFERENCE   1
  AUTHORS   Mond,J.J., Flora,M. and Klinman,D.M.
  TITLE     Immunostimulatory rna/dna hybrid molecules
  JOURNAL   Patent: WO 0193902-A 128 13-DEC-2001;
            Biosynexus Incorporated (US)
FEATURES             Location/Qualifiers
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RESULT 9
AX351860
LOCUS       AX351860                  20 bp    DNA     linear   PAT 06-FEB-2002
DEFINITION  Sequence 156 from Patent WO0193902.
ACCESSION   AX351860
VERSION     AX351860.1  GI:18617143
KEYWORDS    .
SOURCE      synthetic construct.
  ORGANISM  synthetic construct
            artificial sequences.
REFERENCE   1
  AUTHORS   Mond,J.J., Flora,M. and Klinman,D.M.
  TITLE     Immunostimulatory rna/dna hybrid molecules
  JOURNAL   Patent: WO 0193902-A 156 13-DEC-2001;
            Biosynexus Incorporated (US)
FEATURES             Location/Qualifiers
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Db      1 TCCATGGCGGTCCTGATGCT 20


RESULT 10
AX351881
LOCUS       AX351881                  20 bp    DNA     linear   PAT 06-FEB-2002
DEFINITION  Sequence 177 from Patent WO0193902.
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VERSION     AX351881.1  GI:18617164
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SOURCE      synthetic construct.
  ORGANISM  synthetic construct
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REFERENCE   1
  AUTHORS   Mond,J.J., Flora,M. and Klinman,D.M.
  TITLE     Immunostimulatory rna/dna hybrid molecules
  JOURNAL   Patent: WO 0193902-A 177 13-DEC-2001;
            Biosynexus Incorporated (US)
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DEFINITION  Sequence 202 from Patent WO0193902.
ACCESSION   AX351906
VERSION     AX351906.1  GI:18617189
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SOURCE      synthetic construct.
  ORGANISM  synthetic construct
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REFERENCE   1
  AUTHORS   Mond,J.J., Flora,M. and Klinman,D.M.
  TITLE     Immunostimulatory rna/dna hybrid molecules
  JOURNAL   Patent: WO 0193902-A 202 13-DEC-2001;
            Biosynexus Incorporated (US)
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Db      1 TCCATGGCGGTCCTGATGCT 20


RESULT 12
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LOCUS       AX352122                 20 bp    DNA     linear   PAT 06-FEB-2002
DEFINITION  Sequence 418 from Patent WO0193902.
ACCESSION   AX352122
VERSION     AX352122.1  GI:18617405
KEYWORDS    .
SOURCE      synthetic construct.
  ORGANISM  synthetic construct
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REFERENCE   1
  AUTHORS   Mond,J.J., Flora,M. and Klinman,D.M.
  TITLE     Immunostimulatory rna/dna hybrid molecules
  JOURNAL   Patent: WO 0193902-A 418 13-DEC-2001;
            Biosynexus Incorporated (US)
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Db      1 TCCATGGCGGTCCTGATGCT 20


RESULT 13
AX352141
LOCUS       AX352141                 20 bp    DNA     linear   PAT 06-FEB-2002
DEFINITION  Sequence 437 from Patent WO0193902.
ACCESSION   AX352141
VERSION     AX352141.1  GI:18617424
KEYWORDS    .
SOURCE      synthetic construct.
  ORGANISM  synthetic construct
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REFERENCE   1
  AUTHORS   Mond,J.J., Flora,M. and Klinman,D.M.
  TITLE     Immunostimulatory rna/dna hybrid molecules
  JOURNAL   Patent: WO 0193902-A 437 13-DEC-2001;
            Biosynexus Incorporated (US)
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RESULT 14
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LOCUS       AX355567                 20 bp    DNA     linear   PAT 06-FEB-2002
DEFINITION  Sequence 595 from Patent WO0197843.
ACCESSION   AX355567
VERSION     AX355567.1  GI:18620235
KEYWORDS    .
SOURCE      synthetic construct.
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REFERENCE   1
  AUTHORS   Weiner,G. and Hartmann,G.
  TITLE     Methods for enhancing antibody-induced cell lysis and treating
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  JOURNAL   Patent: WO 0197843-A 595 27-DEC-2001;
            UNIVERSITY OF IOWA RESEARCH FOUNDATION (US)
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RESULT 15
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LOCUS       AX455613                 20 bp    DNA     linear   PAT 06-JUL-2002
DEFINITION  Sequence 90 from Patent WO0222809.
ACCESSION   AX455613
VERSION     AX455613.1  GI:21714681
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SOURCE      synthetic construct.
  ORGANISM  synthetic construct
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REFERENCE   1
  AUTHORS   Bauer,S., Lipford,G. and Wagner,H.
  TITLE     Process for high throughput screening of cpg-based
            immuno-agonist/antagonist
  JOURNAL   Patent: WO 0222809-A 90 21-MAR-2002;
            Coley Pharmaceutical GmbH (DE)
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OM nucleic - nucleic search, using sw model

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Title: US-09-818-918-39
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20: /SIDS2/gcgdata/geneseq/geneseqn-embl/NA1999.DAT:*
21: /SIDS2/gcgdata/geneseq/geneseqn-embl/NA2000.DAT:*
22: /SIDS2/gcgdata/geneseq/geneseqn-embl/NA2001A.DAT:*
23: /SIDS2/gcgdata/geneseq/geneseqn-embl/NA2001B.DAT:*
24: /SIDS2/gcgdata/geneseq/geneseqn-embl/NA2002.DAT:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

| Result No. | Score | % Query Match | Length | DB | ID | Description |
|---|---|---|---|---|---|---|
| 1 | 20 | 100.0 | 20 | 19 | AAV27703 | Immunostimulatory |
| 2 | 20 | 100.0 | 20 | 19 | AAV27644 | Immunostimulatory |
| 3 | 20 | 100.0 | 20 | 20 | AAZ41890 | IL-12 secretion in |
| 4 | 20 | 100.0 | 20 | 21 | AAZ60961 | Nucleotide sequenc |
| 5 | 20 | 100.0 | 20 | 21 | AAZ47630 | Parasitic infectio |
| 6 | 20 | 100.0 | 20 | 21 | AAZ47836 | Immunostimulatory |
| 7 | 20 | 100.0 | 20 | 21 | AAZ47966 | Immune remodeling |
| 8 | 20 | 100.0 | 20 | 22 | AAH50604 | Immune response mo |
| 9 | 20 | 100.0 | 20 | 22 | AAF98810 | CpG immunostimulat |
| 10 | 20 | 100.0 | 20 | 22 | AAF99555 | Immunostimulatory |
| 11 | 20 | 100.0 | 20 | 22 | AAH19289 | CpG Oligonucleotid |
| 12 | 20 | 100.0 | 20 | 24 | AAL39215 | Murine Toll-like r |
| 13 | 20 | 100.0 | 20 | 24 | ABK46423 | Immunostimulatory |
| 14 | 20 | 100.0 | 20 | 24 | ABL35131 | Immunostimulatory |
| 15 | 20 | 100.0 | 20 | 24 | ABL35195 | Immunostimulatory |
| 16 | 20 | 100.0 | 20 | 24 | ABL35216 | Immunostimulatory |
| 17 | 20 | 100.0 | 20 | 24 | ABL35242 | Immunostimulatory |
| 18 | 20 | 100.0 | 20 | 24 | ABL35261 | Immunostimulatory |
| 19 | 20 | 100.0 | 20 | 24 | ABL35284 | Immunostimulatory |
| 20 | 20 | 100.0 | 20 | 24 | ABL35494 | Immunostimulatory |
| 21 | 20 | 100.0 | 20 | 24 | ABL35511 | Immunostimulatory |
| 22 | 20 | 100.0 | 20 | 24 | ABL39173 | Immunostimulatory |
| 23 | 20 | 100.0 | 21 | 24 | ABL35383 | Immunostimulatory |
| 24 | 20 | 100.0 | 21 | 24 | ABL35400 | Immunostimulatory |
| 25 | 20 | 100.0 | 22 | 24 | ABL35419 | Immunostimulatory |
| 26 | 20 | 100.0 | 25 | 24 | ABL35305 | Immunostimulatory |
| 27 | 20 | 100.0 | 26 | 24 | ABL35138 | Immunostimulatory |
| 28 | 20 | 100.0 | 28 | 24 | ABL35159 | Immunostimulatory |
| 29 | 20 | 100.0 | 28 | 24 | ABL35178 | Immunostimulatory |
| 30 | 20 | 100.0 | 28 | 24 | ABL35326 | Immunostimulatory |
| 31 | 20 | 100.0 | 28 | 24 | ABL35458 | Immunostimulatory |
| 32 | 20 | 100.0 | 28 | 24 | ABL35477 | Immunostimulatory |
| 33 | 20 | 100.0 | 33 | 24 | ABL35366 | Immunostimulatory |
| 34 | 20 | 100.0 | 33 | 24 | ABL35550 | Immunostimulatory |
| 35 | 20 | 100.0 | 34 | 24 | ABL35347 | Immunostimulatory |
| 36 | 20 | 100.0 | 37 | 24 | ABL35439 | Immunostimulatory |
| 37 | 20 | 100.0 | 40 | 24 | ABL35529 | Immunostimulatory |
| 38 | 20 | 100.0 | 40 | 24 | ABL35530 | Immunostimulatory |
| 39 | 18.4 | 92.0 | 20 | 17 | AAT16898 | Immunomodulatory o |
| 40 | 18.4 | 92.0 | 20 | 18 | AAV06240 | Oligonucleotide El |
| 41 | 18.4 | 92.0 | 20 | 18 | AAT62112 | Murine envelope C |
| 42 | 18.4 | 92.0 | 20 | 19 | AAV27696 | Immunostimulatory |
| 43 | 18.4 | 92.0 | 20 | 19 | AAV27702 | Immunostimulatory |
| 44 | 18.4 | 92.0 | 20 | 19 | AAV27704 | Immunostimulatory |
| 45 | 18.4 | 92.0 | 20 | 19 | AAV27645 | Immunostimulatory |

ALIGNMENTS

RESULT 1
AAV27703
ID AAV27703 standard; DNA; 20 BP.
XX
AC AAV27703;
XX
DT 01-OCT-1998 (first entry)
XX
DE Immunostimulatory oligodeoxyribonucleotide of the invention.
XX
KW Immunostimulatory; oligodeoxyribonucleotide; ODN;
KW unmethylated CpG dinucleotide; activate; lymphocyte; immune response;
KW Th2; Th1; cytokine; treatment; prevention; asthma; autoimmune disease;
KW desensitisation therapy; artificial adjuvant; antibody generation; ss.
XX
OS Synthetic.
XX
PN WO9818810-A1.
XX
PD 07-MAY-1998.
XX
PF 30-OCT-1997; 97WO-US19791.
XX
PR 30-OCT-1996; 96US-0738652.
XX
PA (IOWA ) UNIV IOWA RES FOUND.
XX
PI Kline JN, Krieg AM;
XX
DR WPI; 1998-272127/24.
XX
PT New immunostimulatory nucleic acid molecules - which contain at

PT least one unmethylated CpG dinucleotide, used for treating e.g.
PT tumours, infections or autoimmune disease
XX
PS Disclosure; Page 28; 109pp; English.
XX
CC AAV27641-751 represent immunostimulatory oligodeoxyribonucleotides
CC (ODNs) of the invention. The ODNs contain at least one unmethylated CpG
CC dinucleotide, and have the formula:
CC 5' N1X1CGX2N2 3', where at least one nucleotide separates consecutive
CC CpGs, X1 is adenine, guanine, or thymine, X2 is cytosine or thymine, N
CC is any nucleotide and N1+N2 is 0-26 bases with the provision that N1 and
CC N2 does not contain a CCGG tetramer or more than one CCG or CGG trimer
CC OR 5' NX1X2CGX3X4N 3', where at least one nucleotide separates
CC consecutive CpGs, X1 and X2 are selected from GpT, GpG, GpA, ApT and ApA,
CC X3and X4 are selected from TpT or CpT, N is any nucleotide and N1+N2 is
CC 0-26 bases with the provision that N1 and N2 does not contain a CCGG
CC tetramer or more than one CCG or CGG trimer.
CC The ODNs activate lymphocytes in a subject and redirect a subject's
CC immune response from a Th2 to a Th1 (e.g. by inducing monocytic cells
CC and other cells to produce Th1 cytokines, including IL-12, IFN-gamma and
CC GM-CSF). The ODNs can be used to treat or prevent an asthmatic disorder,
CC autoimmune diseases, in desensitisation therapy, as an artificial
CC adjuvant during antibody generation in a mammal such as a mouse or a
CC human.
XX
SQ Sequence 20 BP; 2 A; 6 C; 6 G; 6 T; 0 other;

Query Match 100.0%; Score 20; DB 19; Length 20;
Best Local Similarity 100.0%; Pred. No. 2.7;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 TCCATGGCGGTCCTGATGCT 20
||||||||||||||||||||
Db 1 TCCATGGCGGTCCTGATGCT 20

RESULT 2
AAV27644
ID AAV27644 standard; DNA; 20 BP.
XX
AC AAV27644;
XX
DT 01-OCT-1998 (first entry)
XX
DE Immunostimulatory oligodeoxyribonucleotide of the invention.
XX
KW Immunostimulatory; oligodeoxyribonucleotide; ODN;
KW unmethylated CpG dinucleotide; activate; lymphocyte; immune response;
KW Th2; Th1; cytokine; treatment; prevention; asthma; autoimmune disease;
KW desensitisation therapy; artificial adjuvant; antibody generation; ss.
XX
OS Synthetic.
XX
PN WO9818810-A1.
XX
PD 07-MAY-1998.
XX
PF 30-OCT-1997; 97WO-US19791.
XX
PR 30-OCT-1996; 96US-0738652.
XX
PA (IOWA ) UNIV IOWA RES FOUND.
XX
PI Kline JN, Krieg AM;
XX
DR WPI; 1998-272127/24.
XX
PT New immunostimulatory nucleic acid molecules - which contain at
PT least one unmethylated CpG dinucleotide, used for treating e.g.
PT tumours, infections or autoimmune disease
XX
PS Claim 23; Page 82; 109pp; English.
XX
CC AAV27641-751 represent immunostimulatory oligodeoxyribonucleotides
CC (ODNs) of the invention. The ODNs contain at least one unmethylated CpG
CC dinucleotide, and have the formula:
CC 5' N1X1CGX2N2 3', where at least one nucleotide separates consecutive
CC CpGs, X1 is adenine, guanine, or thymine, X2 is cytosine or thymine, N
CC is any nucleotide and N1+N2 is 0-26 bases with the provision that N1 and
CC N2 does not contain a CCGG tetramer or more than one CCG or CGG trimer
CC OR 5' NX1X2CGX3X4N 3', where at least one nucleotide separates
CC consecutive CpGs, X1 and X2 are selected from GpT, GpG, GpA, ApT and ApA,
CC X3and X4 are selected from TpT or CpT, N is any nucleotide and N1+N2 is
CC 0-26 bases with the provision that N1 and N2 does not contain a CCGG
CC tetramer or more than one CCG or CGG trimer.
CC The ODNs activate lymphocytes in a subject and redirect a subject's
CC immune response from a Th2 to a Th1 (e.g. by inducing monocytic cells
CC and other cells to produce Th1 cytokines, including IL-12, IFN-gamma and
CC GM-CSF). The ODNs can be used to treat or prevent an asthmatic disorder,
CC autoimmune diseases, in desensitisation therapy, as an artificial
CC adjuvant during antibody generation in a mammal such as a mouse or a
CC human.
XX
SQ Sequence 20 BP; 2 A; 6 C; 6 G; 6 T; 0 other;

Query Match 100.0%; Score 20; DB 19; Length 20;
Best Local Similarity 100.0%; Pred. No. 2.7;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 TCCATGGCGGTCCTGATGCT 20
||||||||||||||||||||
Db 1 TCCATGGCGGTCCTGATGCT 20

RESULT 3
AAZ41890
ID AAZ41890 standard; DNA; 20 BP.
XX
AC AAZ41890;
XX
DT 24-JAN-2000 (first entry)
XX
DE IL-12 secretion inducing CpG oligonucleotide 35.
XX
KW CpG oligonucleotide; phosphorothioate; interleukin-12; IL-12; secretion;
KW human PBMC; immune response; cancer; HIV; bacterial disease; asthma;
KW neoplastic disorder; jaagsiekte; B cell; NK cell; ss; cytokine;
KW antigen presenting cell; infection; allergic disease.
XX
OS Synthetic.
XX
PN WO9951259-A2.
XX
PD 14-OCT-1999.
XX
PF 02-APR-1999; 99WO-US07335.
XX
PR 03-APR-1998; 98US-0080729.
XX
PA (IOWA ) UNIV IOWA RES FOUND.
XX
PI Krieg AM, Weiner G;
XX
DR WPI; 1999-620169/53.
XX
PT Novel synergistic combinations of immunostimulatory oligonucleotides
PT and immunopotentiating cytokines are useful for stimulating the immune
PT system -
XX
PS Example 8; Page 76; 91pp; English.
XX
CC Sequences AAZ41856-Z41949 are phosphorothioate CpG oligonucleotides
CC which are used in the invention to induce interleukin-12 (IL-12)
CC secretion from human PBMC. The invention comprises stimulating an immune
CC response in a subject comprising administering to a subject exposed to an
CC antigen, an immunopotentiating cytokine and an immunostimulatory CpG

CC oligonucleotide to induce a synergistic antigen specific immune
CC response. The methods are useful for treating cancer by stimulating an
CC antigen specific immune response against a cancer antigen. The methods
CC can also be used to treat neoplastic disorders in humans, including but
CC not limited to: sarcoma, carcinoma, fibroma, Lymphoma, melanoma,
CC neuroblastoma, retinoblastoma, and glioma. The methods are also useful
CC for treating infectious diseases, e.g. viral diseases such as HIV,
CC bacterial diseases, and fungal diseases. The methods may also be used to
CC treat allergic diseases, e.g. asthma. The methods and compositions may
CC also be applied to treat cancer and tumours in non human subjects,
CC e.g. cats and dogs. Neoplasias affecting agricultural livestock may also
CC be treated and include leukaemia, haemangiopericytoma and bovine ocular
CC neoplasia. Chronic, infectious, contagious diseases of sheep and goats,
CC caused by the bacterium Corynebacterium pseudotuberculosis, and
CC contagious lung tumour of sheep caused by jaagsiekte may also be
CC treated. CpG oligonucleotides can be useful in activating B cells, NK
CC cells, and antigen presenting cells, such as monocytes and macrophages.
CC CpG oligonucleotides enhance antibody dependent cellular cytotoxicity and
CC can be used as an adjuvant in conjunction with tumour antigens to
CC protect against a tumour challenge.
XX
SQ Sequence 20 BP; 2 A; 6 C; 6 G; 6 T; 0 other;

Query Match 100.0%; Score 20; DB 20; Length 20;
Best Local Similarity 100.0%; Pred. No. 2.7;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 TCCATGGCGGTCCTGATGCT 20
||||||||||||||||||||
Db 1 TCCATGGCGGTCCTGATGCT 20

RESULT 4
AAZ60961
ID AAZ60961 standard; DNA; 20 BP.
XX
AC AAZ60961;
XX
DT 30-MAY-2000 (first entry)
XX
DE Nucleotide sequence of an immunostimulatory CpG oligonucleotide.
XX
KW Immunostimulatory; stereoisomer; CpG oligonucleotide; Th2; Th1; asthma;
KW allergic reaction; allergen; cancer antigen; cancer; immunoinhibitory;
KW inflammatory disease; inflammatory bowel disease; autoimmune disease;
KW gingivitis; psoriasis; sepsis; ss.
XX
OS Synthetic.
XX
PN WO200006588-A1.
XX
PD 10-FEB-2000.
XX
PF 27-JUL-1999; 99WO-US17100.
XX
PR 27-JUL-1998; 98US-0094370.
XX
PA (IOWA ) UNIV IOWA RES FOUND.
PA (CPGI-) CPG IMMUNOPHARMACEUTICALS INC.
XX
PI Krieg AM;
XX
DR WPI; 2000-195254/17.
XX
PT Immunostimulatory and immunoinhibitory stereoisomers of CpG
PT oligonucleotides useful for immunotherapy of cancer -
XX
PS Disclosure; Page 11; 88pp; English.
XX
CC AAZ60933-Z61015 represent immunostimulatory stereoisomers of CpG
CC oligonucleotides. The sequences are derived from generic nucleic
CC acid sequence, from which immunoinhibitory sequences may also be
CC derived. The immunostimulatory nucleic acids can be co-administered
CC with an antigen to induce an antigen-specific immune response. The
CC immunostimulatory nucleic acids can also be used in methods for
CC redirecting a subject's immune response from a Th2 to a Th1, for
CC treating asthma, for desensitising a subject against the occurrence
CC of an allergic reaction in response to contact with an allergen, for
CC activating an immune cell, especially a lymphocyte or a dendritic cell
CC expressing a cancer antigen or for treating cancer. The immunoinhibitory
CC nucleic acid can be used to prevent an immune response, especially where
CC the immune response in the subject is excessive due to having received
CC an immune stimulating compound. The immunoinhibitory nucleic acid can
CC be used to treat a subject having or at risk of an inflammatory disease,
CC especially inflammatory bowel disease, autoimmune disease, gingivitis,
CC psoriasis and sepsis.
XX
SQ Sequence 20 BP; 2 A; 6 C; 6 G; 6 T; 0 other;

Query Match 100.0%; Score 20; DB 21; Length 20;
Best Local Similarity 100.0%; Pred. No. 2.7;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 TCCATGGCGGTCCTGATGCT 20
||||||||||||||||||||
Db 1 TCCATGGCGGTCCTGATGCT 20

RESULT 5
AAZ47630
ID AAZ47630 standard; DNA; 20 BP.
XX
AC AAZ47630;
XX
DT 01-MAR-2000 (first entry)
XX
DE Parasitic infection preventing exemplary oligonucleotide SEQ ID NO:36.
XX
KW Immune system; immunostimulatory; parasitic infection; parasite;
KW CpG oligonucleotide; antigen presenting cell; natural killer cell;
KW granulocyte; malaria; helminth disease; tick; mite; ss.
XX
OS Synthetic.
XX
PN WO9956755-A1.
XX
PD 11-NOV-1999.
XX
PF 06-MAY-1999; 99WO-US09863.
XX
PR 06-MAY-1998; 98US-0084512.
XX
PA (IOWA ) UNIV IOWA RES FOUND.
PA (OTTA-) OTTAWA CIVIC LOEB RES INST.
PA (USNA ) US SEC OF NAVY.
XX
PI Gramzinski RA, Krieg AM, Davis HL, Hoffman SL;
XX
DR WPI; 2000-062123/05.
XX
PT Treating and preventing parasitic infections using CpG oligonucleotides
XX
PS Disclosure; Page 20; 74pp; English.
XX
CC The present invention describes a method for treating and preventing
CC parasitic infection by administration of unmethylated CpG
CC oligonucleotides. The CpG oligonucleotides are able to stimulate the
CC innate immune system via the activation of immune cells, such as antigen
CC presenting cells, natural killer cells and granulocytes. The CpG
CC oligonucleotides and the method can be used to treat and prevent
CC parasitic diseases, such as malaria, helminth diseases, tick and mites
CC in humans, animals and poultry. The oligonucleotides may be administered
CC in conjunction with parasiticides or other therapeutic compounds after
CC an organism has been diagnosed to be infected with parasites. Diseases
CC which can be treated or prevented include those caused by Plasmodium
CC falciparum, P. ovale, P. malariae, P. vivax, P. knowlesi, Babesia

CC microti, B. divergens, Trypanosoma cruzi, T. gambiense, T. rhodesiense,
CC Schistosoma mansoni, Toxoplasma gondii, Trichinella spiralis, Leishmania
CC major, L. donovani, L. braziliensis, and L. tropica. The parasite is
CC especially capable of causing malaria. The present sequence represents
CC a parasitic infection preventing exemplary oligonucleotide sequence from
CC the present invention.
XX
SQ Sequence 20 BP; 2 A; 6 C; 6 G; 6 T; 0 other;

Query Match 100.0%; Score 20; DB 21; Length 20;
Best Local Similarity 100.0%; Pred. No. 2.7;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 TCCATGGCGGTCCTGATGCT 20
||||||||||||||||||||
Db 1 TCCATGGCGGTCCTGATGCT 20

RESULT 6
AAZ47836
ID AAZ47836 standard; DNA; 20 BP.
XX
AC AAZ47836;
XX
DT 07-MAR-2000 (first entry)
XX
DE Immunostimulatory oligonucleotide sequence SEQ ID NO:37.
XX
KW Mucosal immunity; immunostimulatory; CpG motif; immune response;
KW antigen; allergic reaction; cancer; infectious disease; asthma; eczema;
KW allergic rhinitis; coryza; hay fever; conjunctivitis; bronchial asthma;
KW urticaria; food allergy; atopic condition; mucosal delivery; ss.
XX
OS Synthetic.
XX
PN WO9961056-A2.
XX
PD 02-DEC-1999.
XX
PF 21-MAY-1999; 99WO-US11359.
XX
PR 22-MAY-1998; 98US-0086393.
XX
PA (LOEB-) LOEB HEALTH RES INST AT OTTAWA HOSPITAL.
PA (CPGI-) CPG IMMUNOPHARMACEUTICALS INC.
XX
PI McCluskie MJ, Davis HL;
XX
DR WPI; 2000-062585/05.
XX
PT Use of CpG containing oligonucleotides as adjuvants for inducing an
PT immune response -
XX
PS Disclosure; Page 24; 116pp; English.
XX
CC The present invention describes a method using CpG containing
CC oligonucleotides (ONs) as adjuvants for inducing an immune response.
CC The method for inducing a mucosal immune response (MIR) comprises:
CC (1) administering to a mucosal surface of a subject an ON, having a
CC sequence including at least the formula (I); and (2) exposing the
CC subject to an antigen to induce the MIR, where the antigen is not
CC encoded in a nucleic acid vector: 5'X1X2CGX3X43' (I), where
CC C and G = unmethylated, and X1, X2, X3 and X4 = nucleotides. The method
CC can be used for treating a subject at risk of developing an allergic
CC reaction, cancer or infectious disease. It can be used for treating
CC asthmatic subjects, eczema, allergic rhinitis or coryza, hay fever,
CC conjunctivitis, bronchial asthma, urticaria, food allergies or other
CC atopic conditions. The antigen may be derived from infectious organisms
CC such as infectious bacteria, viruses, parasites or fungi. It can be used
CC in humans or animals, e.g. bovine, equine, feline, swine, aquatic or
CC avian species. The ONs act as potent mucosal adjuvants to induce immune
CC responses at both local and remote sites against an antigen
CC administered to the mucosal tissue. Both systemic and mucosal immunity
CC are induced by mucosal delivery of the ONs. AAZ47808 to AAZ47891
CC represent examples of immunostimulatory oligonucleotides given in the
CC present invention.
XX
SQ Sequence 20 BP; 2 A; 6 C; 6 G; 6 T; 0 other;

Query Match 100.0%; Score 20; DB 21; Length 20;
Best Local Similarity 100.0%; Pred. No. 2.7;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 TCCATGGCGGTCCTGATGCT 20
||||||||||||||||||||
Db 1 TCCATGGCGGTCCTGATGCT 20

RESULT 7
AAZ47966
ID AAZ47966 standard; DNA; 20 BP.
XX
AC AAZ47966;
XX
DT 08-MAR-2000 (first entry)
XX
DE Immune remodeling inducing CpG oligonucleotide SEQ ID NO:44.
XX
KW Haematopoiesis; regulation; CpG oligonucleotide; phosphorothioate;
KW immune remodeling; thrombopoiesis; anaemia; immune system; cancer;
KW immune response; allergic reaction; infectious disease; asthma;
KW thrombocytopaenia; immunohaemolytic disorder; genetic disorder;
KW haemoglobinopathy; kidney failure; chronic inflammatory disorder;
KW rheumatoid arthritis; ss.
XX
OS Synthetic.
XX
PN WO9958118-A2.
XX
PD 18-NOV-1999.
XX
PF 14-MAY-1999; 99WO-IB01285.
XX
PR 14-MAY-1998; 98US-0085516.
PR 02-FEB-1999; 99US-0241653.
XX
PA (CPGI-) CPG IMMUNOPHARMACEUTICALS GMBH.
PA (CPGI-) CPG IMMUNOPHARMACEUTICALS INC.
XX
PI Wagner H, Lipford G;
XX
DR WPI; 2000-062261/05.
XX
PT Use of CpG containing oligonucleotides for, e.g. inducing an
PT antigen-specific immune response -
XX
PS Example 1; Page 65; 116pp; English.
XX
CC The present invention describes a method using CpG containing
CC oligonucleotides (ONs) for regulating immune system remodeling and for
CC regulating haematopoiesis. The method for inducing an antigen-specific
CC immune response comprises: (1) administering an ON having a sequence
CC including at least the formula (I); and (2) exposing the subject to an
CC antigen at least 3 days after the ON is administered to the subject to
CC produce an antigen-specific immune response: 5' X1CGX2 3' (I), where
CC the ON = includes at least 8 nucleotides; C and G = unmethylated, and
CC X1 and X2 = nucleotides. The method can be used for inducing an immune
CC response against an antigen such as cells, cell extracts, proteins,
CC polysaccharides, polysaccharide conjugates, lipids, glycolipids,
CC carbohydrate, viral extracts, viruses, bacteria, fungi, parasites and
CC allergens. It can be used in a subject at risk of developing cancer or
CC an allergic reaction. It can also be used for treating an infectious
CC disease, allergic diseases and asthma, as well as thrombocytopaenia
CC which is drug-induced, due to an autoimmune disorder such as idiopathic
CC thrombocytopenic purpura, or resulting from accidental or therapeutic
CC radiation exposure. It can also be used for treating anaemia such as

CC drug-induced anaemia, immunohaemolytic disorder, genetic disorders such
CC as haemoglobinopathy and inherited haemolytic anaemia, inadequate
CC production despite adequate iron stores, chronic disease such as kidney
CC failure, and chronic inflammatory disorder such as rheumatoid arthritis,
CC or anaemia resulting from accidental or therapeutic radiation exposure.
CC AAZ47932 to AAZ48029 represent phosphorothioate CpG oligonucleotides
CC used in the exemplification of the present invention.
XX
SQ Sequence 20 BP; 2 A; 6 C; 6 G; 6 T; 0 other;

Query Match 100.0%; Score 20; DB 21; Length 20;
Best Local Similarity 100.0%; Pred. No. 2.7;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 TCCATGGCGGTCCTGATGCT 20
||||||||||||||||||||
Db 1 TCCATGGCGGTCCTGATGCT 20

RESULT 8
AAH50604
ID AAH50604 standard; DNA; 20 BP.
XX
AC AAH50604;
XX
DT 22-AUG-2001 (first entry)
XX
DE Immune response modulating related oligonucleotide SEQ ID NO:34.
XX
KW Immunostimulatory; inducing; natural killer cell; lytic activity;
KW unmethylated CpG dinucleotide; immune response; B cell proliferation;
KW Th1; immune activation; interleukin 6; IL-6; interferon gamma;
KW IFN-gamma; cytokine; ss.
XX
OS Synthetic.
XX
PN US6239116-B1.
XX
PD 29-MAY-2001.
XX
PF 30-OCT-1997; 97US-0960774.
XX
PR 30-OCT-1996; 96US-0738652.
XX
PA (IOWA ) UNIV IOWA RES FOUND.
PA (COLE-) COLEY PHARM GROUP INC.
PA (USSH ) US DEPT HEALTH & HUMAN SERVICES.
XX
PI Krieg AM, Kline JN;
XX
DR WPI; 2001-380456/40.
XX
PT Methods for inducing Il-6, interferon-gamma or Il-12, or stimulating
PT natural killer cell lytic activity in a human, comprise administering
PT to the subject or exposing a natural killer cell to immunostimulatory
PT nucleic acids -
XX
PS Claim 13; Column 100; 74pp; English.
XX
CC The present invention describes methods for inducing interleukin 6
CC (IL-6), interferon-gamma (IFN-gamma) or IL-12, or for stimulating
CC natural killer cell lytic activity. The methods comprise administering
CC to the subject or exposing a natural killer cell to an immunostimulatory
CC nucleic acid. Also described are: (1) inducing IL-6 in a subject
CC comprising administering to the subject to induce IL-6 in the subject
CC the immunostimulatory nucleic acid; (2) stimulating natural killer cell
CC lytic activity comprising exposing a natural killer cell to the
CC immunostimulatory nucleic acid to stimulate natural killer cell lytic
CC activity; (3) inducing interferon-gamma in a subject to treat an immune
CC system deficiency comprising administering to the subject to induce
CC interferon-gamma production, the immunostimulatory nucleic acid; and
CC (4) inducing IL-12 in a subject comprising administering to the subject
CC the immunostimulatory nucleic acid. The methods are useful for inducing
CC IL-6, interferon-gamma or IL-12, or stimulating natural killer cell
CC lytic activity in a subject, particularly a human. The methods are
CC particularly useful for modulating an immune response. AAH50571 to
CC AAH50671 represent oligonucleotide sequences used in the exemplification
CC of the present invention.
XX
SQ Sequence 20 BP; 2 A; 6 C; 6 G; 6 T; 0 other;

Query Match 100.0%; Score 20; DB 22; Length 20;
Best Local Similarity 100.0%; Pred. No. 2.7;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 TCCATGGCGGTCCTGATGCT 20
||||||||||||||||||||
Db 1 TCCATGGCGGTCCTGATGCT 20

RESULT 9
AAF98810
ID AAF98810 standard; DNA; 20 BP.
XX
AC AAF98810;
XX
DT 11-JUN-2001 (first entry)
XX
DE CpG immunostimulatory nucleic acid SEQ ID NO: 88.
XX
KW Immunostimulatory nucleic acid; ISNA; human; interferon alpha; IFN-alpha;
KW viral infection; phosphorothioate backbone; palindrome; cancer; ds.
XX
OS Synthetic.
XX
PN WO200122990-A2.
XX
PD 05-APR-2001.
XX
PF 27-SEP-2000; 2000WO-US26527.
XX
PR 27-SEP-1999; 99US-0156147.
XX
PA (COLE-) COLEY PHARM GROUP INC.
PA (IOWA ) UNIV IOWA RES FOUND.
XX
PI Hartmann G, Bratzler RL, Krieg A;
XX
DR WPI; 2001-290487/30.
XX
PT Improving the efficacy of treatments involving the administration of
PT interferon-alpha by co-administering an isolated immunostimulatory
PT nucleic acid -
XX
PS Disclosure; Page 22; 168pp; English.
XX
CC The present invention describes an improvement to a method requiring the
CC administration of interferon alpha (IFN-alpha), involving administering
CC an immunostimulatory nucleic acid (ISNA). The sequences of a number of
CC such nucleic acids are also provided. These may comprise oligonucleotides
CC with phosphorothioate backbones, palindromes, or G-rich sequences. The
CC sequences of the invention are useful in the treatment of proliferative
CC diseases, such as cancers, and viral infections. The present sequence is
CC an example of an immunostimulatory oligonucleotide.
XX
SQ Sequence 20 BP; 2 A; 6 C; 6 G; 6 T; 0 other;

Query Match 100.0%; Score 20; DB 22; Length 20;
Best Local Similarity 100.0%; Pred. No. 2.7;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 TCCATGGCGGTCCTGATGCT 20
||||||||||||||||||||
Db 1 TCCATGGCGGTCCTGATGCT 20

```
RESULT 10
AAF99555
ID   AAF99555 standard; DNA; 20 BP.
XX
AC   AAF99555;
XX
DT   12-JUN-2001  (first entry)
XX
DE   Immunostimulatory nucleic acid #671.
XX
KW   Vaccine; cytostatic; virucidal; bactericidal; fungicidal; anti-parasitic;
KW   immunostimulatory; tumour; viral infection; bacterial infection;
KW   fungal infection; parasitic infection; cancer; asthma;
KW   infectious disease; allergy; immune deficiency; phosphorothioate; ss.
XX
OS   Synthetic.
XX
PN   WO200122972-A2.
XX
PD   05-APR-2001.
XX
PF   25-SEP-2000; 2000WO-US26383.
XX
PR   25-SEP-1999;   99US-0156113.
PR   27-SEP-1999;   99US-0156135.
PR   23-AUG-2000; 2000US-0227436.
XX
PA   (IOWA ) UNIV IOWA RES FOUND.
PA   (COLE-) COLEY PHARM GMBH.
XX
PI   Krieg AM,  Schetter C,  Vollmer J;
XX
DR   WPI; 2001-273485/28.
XX
PT   Vaccinating against tumors, infectious diseases, allergies and asthma
PT   using immunostimulatory Py-rich and TG nucleic acids -
XX
PS   Claim 101; Page 53; 338pp; English.
XX
CC   The present invention relates to a method for stimulating an immune
CC   response. The method comprises administering an immunostimulatory nucleic
CC   acid to a non-rodent subject in sufficient quantity to stimulate an
CC   immune response. The present sequence is one such immunostimulatory
CC   nucleic acid. The immunostimulatory nucleic acids can be pyrimidine rich
CC   (py-rich) or thymidine (T) rich. The method is used to vaccinate subjects
CC   against tumour antigens, viral antigens (e.g. herpesviridae, retroviridae
CC   and/or orthomyxoviridae), bacterial antigens (e.g. toxoplasma,
CC   haemophilus, campylobacter, clostridium, Escherichia coli and/or
CC   staphylococcus), fungal antigens and/or parasitic antigens. The method is
CC   also useful for preventing cancer, asthma, infectious disease, allergy or
CC   immune deficiency. The present sequence can also be used to redirect a
CC   Th2 to a Th1 immune response and to activate immune cells.
CC   Note: the present sequence may have a phosphorothioate backbone.
XX
SQ   Sequence 20 BP; 2 A; 6 C; 6 G; 6 T; 0 other;

  Query Match             100.0%;  Score 20;  DB 22;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 2.7;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       1 TCCATGGCGGTCCTGATGCT 20
           ||||||||||||||||||||
Db       1 TCCATGGCGGTCCTGATGCT 20


RESULT 11
AAH19289
ID   AAH19289 standard; DNA; 20 BP.
XX
AC   AAH19289;
XX
DT   13-JUL-2001  (first entry)
XX
DE   CpG Oligonucleotide 1615.
XX
KW   Immunostimulant; antiallergic; cytostatic; antiasthmatic; vaccine;
KW   gene therapy; CpG; immune system deficiency; tumour; cancer; infection;
KW   leukaemia; ss.
XX
OS   Synthetic.
XX
PN   US6207646-B1.
XX
PD   27-MAR-2001.
XX
PF   30-OCT-1996;   96US-0738652.
XX
PR   07-FEB-1995;   95US-0386063.
PR   15-JUL-1994;   94US-0276358.
XX
PA   (IOWA ) UNIV IOWA RES FOUND.
PA   (COLE-) COLEY PHARM GROUP INC.
PA   (USSH ) US DEPT HEALTH & HUMAN SERVICES.
XX
PI   Krieg AM,  Kline J,  Klinman D,  Steinberg AD;
XX
DR   WPI; 2001-280761/29.
XX
PT   Compositions comprising immunostimulatory molecules which comprise
PT   unmethylated CpG dinucleotides useful for ameliorating immune system
PT   deficiency, treating leukemia and desensitizing subject against
PT   allergic response -
XX
PS   Disclosure; Columns 17-18; 55pp; English.
XX
CC   The present invention relates to a composition comprising an isolated
CC   immunostimulatory nucleic acid which comprises unmethylated
CC   cytosine-guanine (CpG) dinucleotides and an antigen in a carrier. The
CC   present sequence is an oligonucleotide, which was used in the present
CC   invention. The immunostimulatory nucleic acids are useful for
CC   ameliorating an immune system deficiency (the presence of tumour, cancer
CC   or infectious agent) in a subject. The immunostimulatory nucleic acids
CC   are also useful for desensitising a subject against the occurrence of an
CC   allergic reaction in response to contact with a particular allergen.
CC   The immunostimulatory nucleic acids are also useful for vaccination and
CC   for treating leukaemia in a subject on administration prior to or in
CC   conjunction with a chemotherapy, so that the subject's leukaemia cells
CC   are more sensitive to chemotherapy. The compositions are useful for
CC   inducing an antigen specific immune response in the subject. The
CC   compositions can be also used to treat or prevent the symptoms of asthma.
XX
SQ   Sequence 20 BP; 2 A; 6 C; 6 G; 6 T; 0 other;

  Query Match             100.0%;  Score 20;  DB 22;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 2.7;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       1 TCCATGGCGGTCCTGATGCT 20
           ||||||||||||||||||||
Db       1 TCCATGGCGGTCCTGATGCT 20


RESULT 12
AAL39215
ID   AAL39215 standard; DNA; 20 BP.
XX
AC   AAL39215;
XX
DT   05-SEP-2002  (first entry)
XX
DE   Murine Toll-like receptor related CpG DNA SEQ ID No 90.
XX
KW   Murine Toll-like receptor; TLR9; TLR7; TLR8; ISNA; ds.
XX
OS   Unidentified.
XX
```

PN WO200222809-A2.
XX
PD 21-MAR-2002.
XX
PF 17-SEP-2001; 2001WO-US29229.
XX
PR 15-SEP-2000; 2000US-233035P.
PR 23-JAN-2001; 2001US-263657P.
PR 17-MAY-2001; 2001US-291726P.
PR 22-JUN-2001; 2001US-300210P.
XX
PA (COLE-) COLEY PHARM GMBH.
XX
PI Bauer S, Lipford G, Wagner H;
XX
DR WPI; 2002-393964/42.
XX
PT New isolated murine Toll-like receptor (TLR)9, TLR7, TLR8 polypeptides,
PT useful for identifying species specificity of immunostimulatory nucleic
PT acid and identifying immunostimulatory nucleic acids -
XX
PS Disclosure; Page 77; 195pp; English.
XX
CC The invention relates to isolated murine Toll-like receptors (TLR)9,
CC TLR7 and TLR8 polypeptides. These polypeptides comprise fully defined
CC sequences of 1032, 1050 or 1032 amino acids as given in specification, or
CC their fragments, where TLR9, TLR7 and TLR8 polypeptides or their
CC fragments have an amino acid sequence which is identical to human TLR9,
CC TLR7 or TLR8 polypeptides or their fragment except for at least one amino
CC acid of a murine TLR polypeptide. The isolated nucleic acids of the
CC invention are useful for inhibiting TLR9 signalling activity in a cell.
CC TLR7, TLR8 and TLR9 polypeptides are useful for identifying nucleic acid
CC molecules which interact with a TLR polypeptide or its fragment. The
CC TLR7, TLR8 or TLR9 polypeptides are also useful for identifying ISNA. The
CC TLR7, TLR8 and TLR9 polypeptides are also useful for comparing TLR9
CC signalling activity of a test compound (that is not a nucleic acid, and
CC is a polypeptide or a part of a combinatorial library of compounds) with
CC an ISNA. The TLR7, TLR8 and TLR9 polypeptides are also useful for
CC identifying species specificity of an ISNA. The isolated nucleic acids of
CC the invention are useful as probes or primers. This polynucleotide
CC sequence represents DNA relating to the isolated Toll-like receptors of
CC the invention.
XX
SQ Sequence 20 BP; 2 A; 6 C; 6 G; 6 T; 0 other;

Query Match 100.0%; Score 20; DB 24; Length 20;
Best Local Similarity 100.0%; Pred. No. 2.7;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 TCCATGGCGGTCCTGATGCT 20
||||||||||||||||||||
Db 1 TCCATGGCGGTCCTGATGCT 20

RESULT 13
ABK46423
ID ABK46423 standard; DNA; 20 BP.
XX
AC ABK46423;
XX
DT 05-JUN-2002 (first entry)
XX
DE Immunostimulatory unmethylated CpG oligodideoxynucleotide #13.
XX
KW unmethylated CpG; oligdideoxynucleotide; ODN; virucide; vaccine;
KW Paramyxoviridae; F protein; respiratory syncytial virus; RSV;
KW viral bronchiolitis; pneumonia; infectious pulmonary disease;
KW bronchopulmonary dysplasia; congenital heart condition; ss.
XX
OS Synthetic.
XX
PN WO200211761-A2.
XX
PD 14-FEB-2002.
XX
PF 09-AUG-2001; 2001WO-US41633.
XX
PR 10-AUG-2000; 2000US-224011P.
PR 01-SEP-2000; 2000US-229307P.
XX
PA (JACK-) JACKSON FOUND ADVANCEMENT MILITARY MED.
XX
PI Mond JJ, Prince G, Klinman DM;
XX
DR WPI; 2002-227118/28.
XX
PT Vaccine for immunising patient against respiratory syncytial virus, has
PT epitopes of Paramyxoviridae F protein, and cytosine followed by guanine
PT linked by phosphate bond-oligodideoxynucleotides -
XX
PS Claim 4; Page 7; 30pp; English.
XX
CC The invention describes a vaccine comprising one or more epitopes of a
CC Paramyxoviridae F protein, and one or more CpG (cytosine followed by
CC guanine linked by phosphate bond)-oligodideoxynucleotides (ODNs). The
CC vaccine is useful for vaccinating a patient especially against viruses
CC of the Paramyxoviridae family e.g. respiratory syncytial virus (RSV),
CC the primary cause of viral bronchiolitis and pneumonia in infants and
CC children, and infectious pulmonary disease in infants. RSV has been
CC particularly implicated in death of infants that are premature, have
CC bronchopulmonary dysplasia, or congenital heart conditions. This
CC sequence represents an oligodideoxynucleotide that can be used in the
CC creation of the vaccine.
XX
SQ Sequence 20 BP; 2 A; 6 C; 6 G; 6 T; 0 other;

Query Match 100.0%; Score 20; DB 24; Length 20;
Best Local Similarity 100.0%; Pred. No. 2.7;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 TCCATGGCGGTCCTGATGCT 20
||||||||||||||||||||
Db 1 TCCATGGCGGTCCTGATGCT 20

RESULT 14
ABL35131
ID ABL35131 standard; DNA; 20 BP.
XX
AC ABL35131;
XX
DT 04-APR-2002 (first entry)
XX
DE Immunostimulatory oligonucleotide SEQ ID NO: 39.
XX
KW DNA/RNA hybrid; phosphorothioate backbone; immunostimulatory;
KW vaccine; infection; allergy; cancer; hypersensitivity; bio-warfare;
KW immunostimulant; antiallergic; cytostatic; antimicrobial; anti-HIV;
KW immunosuppressive; protozoacide; virucide; hepatotropic; gene therapy;
KW antiinflammatory; antibacterial; ss.
XX
OS Synthetic.
XX
FH Key Location/Qualifiers
FT misc_RNA 1..20
FT /*tag= a
FT /note= "optionally thymidine is replaced by uracil to
FT form RNA or DNA/RNA hybrids. Thymidine is linked to at
FT least one other base through a ribose sugar"
XX
PN WO200193902-A2.
XX
PD 13-DEC-2001.
XX
PF 07-JUN-2001; 2001WO-US18276.
XX

```
PR   07-JUN-2000; 2000US-209797P.
XX
PA   (BIOS-) BIOSYNEXUS INC.
XX
PI   Mond JJ,  Flora M,  Klinman DM;
XX
DR   WPI; 2002-130570/17.
XX
PT   New immunostimulatory compositions comprising RNA/DNA hybrid
PT   oligonucleotides, useful for enhancing an immune response or inducing
PT   cytokines, particularly for treating diseases, e.g. cancer, allergy or
PT   HIV infection  -
XX
PS   Example 11; Page 51; 68pp; English.
XX
CC   The present invention relates to an immunostimulatory composition, which
CC   comprises at least one oligonucleotide comprising both an RNA region and
CC   a DNA region. The composition is useful for enhancing an immune response
CC   or inducing cytokines. It can be used as a vaccine adjuvant and in
CC   treating diseases, including pathogenic infection, (non-)malignant
CC   tumours (e.g. cancers of the brain, lung, ovary, breast, prostate or
CC   colon, or carcinomas and sarcomas), autoimmune diseases or allergies
CC   (e.g. allergic rhinitis, hay fever or food allergies), Lyme disease,
CC   hepatitis, HIV or malaria. The composition is also useful for treating,
CC   preventing or ameliorating the symptoms resulting from exposure to a
CC   bio-warfare agent, e.g. Ebola, Anthrax or Listeria. The present sequence
CC   is an immunostimulatory oligonucleotide described in the exemplification
CC   of the invention.
XX
SQ   Sequence 20 BP; 2 A; 6 C; 6 G; 6 T; 0 other;

  Query Match             100.0%;  Score 20;  DB 24;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 2.7;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGGCGGTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATGGCGGTCCTGATGCT 20


RESULT 15
ABL35195
ID   ABL35195 standard; DNA; 20 BP.
XX
AC   ABL35195;
XX
DT   04-APR-2002  (first entry)
XX
DE   Immunostimulatory oligonucleotide SEQ ID NO: 105.
XX
KW   DNA/RNA hybrid; phosphorothioate backbone; immunostimulatory;
KW   vaccine; infection; allergy; cancer; hypersensitivity; bio-warfare;
KW   immunostimulant; antiallergic; cytostatic; antimicrobial; anti-HIV;
KW   immunosuppressive; protozoacide; virucide; hepatotropic; gene therapy;
KW   antiinflammatory; antibacterial; ss.
XX
OS   Synthetic.
XX
FH   Key             Location/Qualifiers
FT   misc_RNA        1..20
FT                   /*tag=  a
FT                   /note= "optionally thymidine is replaced by uracil to
FT                   form RNA or DNA/RNA hybrids. Thymidine is linked to at
FT                   least one other base through a ribose sugar"
XX
PN   WO200193902-A2.
XX
PD   13-DEC-2001.
XX
PF   07-JUN-2001; 2001WO-US18276.
XX
PR   07-JUN-2000; 2000US-209797P.
XX
PA   (BIOS-) BIOSYNEXUS INC.
XX
PI   Mond JJ,  Flora M,  Klinman DM;
XX
DR   WPI; 2002-130570/17.
XX
PT   New immunostimulatory compositions comprising RNA/DNA hybrid
PT   oligonucleotides, useful for enhancing an immune response or inducing
PT   cytokines, particularly for treating diseases, e.g. cancer, allergy or
PT   HIV infection  -
XX
PS   Example 11; Page 52; 68pp; English.
XX
CC   The present invention relates to an immunostimulatory composition, which
CC   comprises at least one oligonucleotide comprising both an RNA region and
CC   a DNA region. The composition is useful for enhancing an immune response
CC   or inducing cytokines. It can be used as a vaccine adjuvant and in
CC   treating diseases, including pathogenic infection, (non-)malignant
CC   tumours (e.g. cancers of the brain, lung, ovary, breast, prostate or
CC   colon, or carcinomas and sarcomas), autoimmune diseases or allergies
CC   (e.g. allergic rhinitis, hay fever or food allergies), Lyme disease,
CC   hepatitis, HIV or malaria. The composition is also useful for treating,
CC   preventing or ameliorating the symptoms resulting from exposure to a
CC   bio-warfare agent, e.g. Ebola, Anthrax or Listeria. The present sequence
CC   is an immunostimulatory oligonucleotide described in the exemplification
CC   of the invention.
XX
SQ   Sequence 20 BP; 2 A; 6 C; 6 G; 6 T; 0 other;

  Query Match             100.0%;  Score 20;  DB 24;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 2.7;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGGCGGTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATGGCGGTCCTGATGCT 20


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Job time : 143.75 secs
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GenCore version 5.1.4_p5_4578


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(without alignments)
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Perfect score: 20
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Scoring table: IDENTITY_NUC
Gapop 10.0 , Gapext 1.0

Searched: 16154066 seqs, 8097743376 residues

Total number of hits satisfying chosen parameters: 357874

Minimum DB seq length: 0
Maximum DB seq length: 100

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

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5: em_estov:*
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7: em_estro:*
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13: gb_est4:*
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15: em_estfun:*
16: em_estom:*
17: gb_gss:*
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22: em_gss_fun:*
23: em_gss_mam:*
24: em_gss_mus:*
25: em_gss_other:*
26: em_gss_pro:*
27: em_gss_rod:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

| | Result No. | Score | % Query Match | Length | DB | ID | Description |
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| c | 2 | 18.4 | 92.0 | 97 | 9 | AA082589 | AA082589 zn23g09.r |
| | 3 | 15.2 | 76.0 | 46 | 9 | AA611416 | AA611416 vo51f04.r |
| | 4 | 14.8 | 74.0 | 77 | 9 | AA733452 | AA733452 vt74g04.r |
| | 5 | 14.2 | 71.0 | 47 | 12 | BE866303 | BE866303 601678950 |
| | 6 | 13.8 | 69.0 | 50 | 9 | AU103949 | AU103949 AU103949 |
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| | 8 | 13.8 | 69.0 | 86 | 13 | BM369321 | BM369321 EBem07_SQ |
| c | 9 | 13.8 | 69.0 | 97 | 9 | AA984193 | AA984193 am82b09.s |
| | 10 | 13.6 | 68.0 | 67 | 17 | AZ788045 | AZ788045 2M0034G22 |
| c | 11 | 13.6 | 68.0 | 88 | 17 | AZ804381 | AZ804381 2M0065F18 |
| | 12 | 13.6 | 68.0 | 100 | 9 | AA020129 | AA020129 mh50a10.r |
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| c | 15 | 13.2 | 66.0 | 62 | 10 | AW249457 | AW249457 2821191.3 |
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| | 19 | 13.2 | 66.0 | 94 | 10 | AV962947 | AV962947 AV962947 |
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| c | 21 | 13.2 | 66.0 | 99 | 12 | BG795243 | BG795243 UTSW_SM30 |
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| | 24 | 12.8 | 64.0 | 50 | 9 | AU103957 | AU103957 AU103957 |
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| c | 27 | 12.8 | 64.0 | 70 | 17 | AZ592123 | AZ592123 1M0402H13 |
| | 28 | 12.8 | 64.0 | 78 | 12 | BG167620 | BG167620 602345679 |
| | 29 | 12.8 | 64.0 | 93 | 9 | AA544812 | AA544812 vk41f02.r |
| | 30 | 12.8 | 64.0 | 95 | 9 | AT006245 | AT006245 AT006245 |
| | 31 | 12.8 | 64.0 | 99 | 14 | H58240 | H58240 yr06e06.s1 |
| c | 32 | 12.6 | 63.0 | 40 | 9 | AI766330 | AI766330 wh60c02.x |
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| | 39 | 12.6 | 63.0 | 63 | 9 | AU076705 | AU076705 AU076705 |
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| | 41 | 12.6 | 63.0 | 77 | 14 | BQ758187 | BQ758187 EBma01_SQ |
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| c | 43 | 12.6 | 63.0 | 80 | 14 | T81952 | T81952 yd94e09.r1 |
| c | 44 | 12.6 | 63.0 | 80 | 17 | AZ784123 | AZ784123 2M0026P06 |
| c | 45 | 12.6 | 63.0 | 84 | 9 | AA623770 | AA623770 vq69d02.s |

ALIGNMENTS

RESULT 1
AA855652/c
LOCUS AA855652 70 bp mRNA linear EST 06-MAR-1998
DEFINITION vw70g01.r1 Stratagene mouse heart (#937316) Mus musculus cDNA clone IMAGE:1260336 5' similar to gb:M11301 Mouse (MOUSE);, mRNA sequence.
ACCESSION AA855652
VERSION AA855652.1 GI:2943190
KEYWORDS EST.
SOURCE house mouse.
ORGANISM Mus musculus
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
REFERENCE 1 (bases 1 to 70)
AUTHORS Marra,M., Hillier,L., Allen,M., Bowles,M., Dietrich,N., Dubuque,T., Geisel,S., Kucaba,T., Lacy,M., Le,M., Martin,J., Morris,M., Schellenberg,K., Steptoe,M., Tan,F., Underwood,K., Moore,B., Theising,B., Wylie,T., Lennon,G., Soares,B., Wilson,R. and Waterston,R.
TITLE The WashU-HHMI Mouse EST Project
JOURNAL Unpublished (1996)
COMMENT Contact: Marra M/Mouse EST Project
WashU-HHMI Mouse EST Project
Washington University School of MedicineP
4444 Forest Park Parkway, Box 8501, St. Louis, MO 63108
Tel: 314 286 1800
Fax: 314 286 1810
Email: mouseest@watson.wustl.edu
This clone is available royalty-free through LLNL ; contact the

```
          IMAGE Consortium (info@image.llnl.gov) for further information.
          MGI:662888
          Seq primer: -28m13 rev1 ET from Amersham
          High quality sequence stop: 19.
FEATURES             Location/Qualifiers
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                     /tissue_type="heart"
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                     Oligo dT. 93 pooled NIH/Swiss 13 day embryo hearts.
                     Average insert size: 1.0 kb; Uni-ZAP XR Vector; ~5'
                     adaptor sequence: 5' GAATTCGGCACGAG 3' ~3' adaptor
                     sequence: 5' CTCGAGTTTTTTTTTTTTTTTTT 3'"
BASE COUNT       20 a     22 c     17 g     11 t
ORIGIN

  Query Match             92.0%;  Score 18.4;  DB 9;  Length 70;
  Best Local Similarity   95.0%;  Pred. No. 7.7e+02;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy       1 TCCATGGCGGTCCTGATGCT 20
           |||||| ||||||||||||||
Db      36 TCCATGTCGGTCCTGATGCT 17


RESULT 2
AA082589/c
LOCUS       AA082589                 97 bp    mRNA    linear   EST 23-DEC-1997
DEFINITION  zn23g09.r1 Stratagene neuroepithelium NT2RAMI 937234 Homo sapiens
            cDNA clone IMAGE:548320 5' similar to TR:G387484 G387484 POL
            PROTEIN ;, mRNA sequence.
ACCESSION   AA082589
VERSION     AA082589.1  GI:1624648
KEYWORDS    EST.
SOURCE      human.
  ORGANISM  Homo sapiens
            Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
            Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
REFERENCE   1  (bases 1 to 97)
  AUTHORS   Hillier,L., Lennon,G., Becker,M., Bonaldo,M.F., Chiapelli,B.,
            Chissoe,S., Dietrich,N., DuBuque,T., Favello,A., Gish,W., Hawkins
            ,M., Hultman,M., Kucaba,T., Lacy,M., Le,M., Le,N., Mardis,E., Moore
            ,B., Morris,M., Parsons,J., Prange,C., Rifkin,L., Rohlfing,T.,
            Schellenberg,K., Soares,M.B., Tan,F., Thierry-Meg,J., Trevaskis,E.,
            Underwood,K., Wohldmann,P., Waterston,R., Wilson,R. and Marra,M.
  TITLE     Generation and analysis of 280,000 human expressed sequence tags
  JOURNAL   Genome Res. 6 (9), 807-828 (1996)
  MEDLINE   97044478
COMMENT     Contact: Wilson RK
            Washington University School of Medicine
            4444 Forest Park Parkway, Box 8501, St. Louis, MO 63108
            Tel: 314 286 1800
            Fax: 314 286 1810
            Email: est@watson.wustl.edu
            WARNING: There is evidence that suggests that the 384-well parent
            plate of this clone contains both human and mouse derived clones.
            Thus, the origin of this clone is uncertain. This caution should be
            kept in mind should you use this clone.

            This clone is available royalty-free through LLNL ; contact the
            IMAGE Consortium (info@image.llnl.gov) for further information.
            Trace considered overall poor quality
            Possible reversed clone: similarity on wrong strand
            Seq primer: -28M13 rev2 from Amersham
            High quality sequence stop: 1.
FEATURES             Location/Qualifiers
     source          1. .97
                     /organism="Homo sapiens"
                     /db_xref="GDB:3926836"
                     /db_xref="taxon:9606"
                     /clone="IMAGE:548320"
                     /clone_lib="Stratagene neuroepithelium NT2RAMI 937234"
                     /dev_stage="Ntera-2/RA+MI neuroepithelial cells"
                     /lab_host="SOLR (kanamycin resistant)"
                     /note="Vector: pBluescript SK-; Site_1: EcoRI; Site_2:
                     XhoI; Cloned unidirectionally.  Primer: Oligo dT. NT2
                     (Ntera-2/c1.D1)  precursor cells induced with Retinoic
                     Acid for 1 week, followed by 3 weeks in mitotic inhibitors
                     (Replate #2). Average insert size: 1.1 kb; Uni-ZAP XR
                     Vector; ~5' adaptor sequence: 5' GAATTCGGCACGAG 3' ~3'
                     adaptor sequence: 5' CTCGAGTTTTTTTTTTTTTTTT 3'"
BASE COUNT       24 a     31 c     23 g     11 t      8 others
ORIGIN

  Query Match             92.0%;  Score 18.4;  DB 9;  Length 97;
  Best Local Similarity   95.0%;  Pred. No. 8.1e+02;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy       1 TCCATGGCGGTCCTGATGCT 20
           |||||| ||||||||||||||
Db      44 TCCATGTCGGTCCTGATGCT 25


RESULT 3
AA611416
LOCUS       AA611416                 46 bp    mRNA    linear   EST 01-OCT-1997
DEFINITION  vo51f04.r1 Barstead mouse irradiated colon MPLRB7 Mus musculus cDNA
            clone IMAGE:1053439 5' similar to SW:IPYR_BOVIN P37980 INORGANIC
            PYROPHOSPHATASE ;, mRNA sequence.
ACCESSION   AA611416
VERSION     AA611416.1  GI:2461495
KEYWORDS    EST.
SOURCE      house mouse.
  ORGANISM  Mus musculus
            Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
            Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
REFERENCE   1  (bases 1 to 46)
  AUTHORS   Marra,M., Hillier,L., Allen,M., Bowles,M., Dietrich,N., Dubuque,T.,
            Geisel,S., Kucaba,T., Lacy,M., Le,M., Martin,J., Morris,M.,
            Schellenberg,K., Steptoe,M., Tan,F., Underwood,K., Moore,B.,
            Theising,B., Wylie,T., Lennon,G., Soares,B., Wilson,R. and
            Waterston,R.
  TITLE     The WashU-HHMI Mouse EST Project
  JOURNAL   Unpublished (1996)
COMMENT     Contact: Marra M/Mouse EST Project
            WashU-HHMI Mouse EST Project
            Washington University School of MedicineP
            4444 Forest Park Parkway, Box 8501, St. Louis, MO 63108
            Tel: 314 286 1800
            Fax: 314 286 1810
            Email: mouseest@watson.wustl.edu
            This clone is available royalty-free through LLNL ; contact the
            IMAGE Consortium (info@image.llnl.gov) for further information.
            MGI:585015
            Trace considered overall poor quality
            Possible reversed clone: similarity on wrong strand
            Seq primer: -28m13 rev2 ET from Amersham
            High quality sequence stop: 1.
FEATURES             Location/Qualifiers
     source          1. .46
                     /organism="Mus musculus"
                     /strain="FVB/N"
                     /db_xref="taxon:10090"
                     /clone="IMAGE:1053439"
                     /clone_lib="Barstead mouse irradiated colon MPLRB7"
                     /dev_stage="8 weeks"
                     /lab_host="DH10B"
                     /note="Vector: pT7T3D-Pac (Pharmacia) with a modified
```

polylinker; Site_1: EcoRI; Site_2: NotI; Tissue obtained from 8 week old mouse. Colon was harvested 72 hours after irradiation with 1400 Gys. 1st strand cDNA was primed with a Not I - oligo(dT) primer [5'TGTTACGAATCTGAAGTGGGAGCGGCCGCCCTTTTTTTTTTTTTTTTTTTTTTTT T 3']; double-stranded cDNA was ligated to Eco RI adaptors [AATTCGGATCCTTG], digested with Not I and cloned into the Not I and Eco RI sites of the modified pT7T3 vector. Library constructed by Bob Barstead. "

BASE COUNT 7 a 14 c 9 g 16 t
ORIGIN

Query Match 76.0%; Score 15.2; DB 9; Length 46;
Best Local Similarity 85.0%; Pred. No. 1.5e+04;
Matches 17; Conservative 0; Mismatches 3; Indels 0; Gaps 0;

```
Qy      1 TCCATGGCGGTCCTGATGCT 20
          || || ||| ||||||||||
Db      6 TCTATTGCGATCCTGATGCT 25
```

RESULT 4
AA733452
LOCUS AA733452 77 bp mRNA linear EST 07-JAN-1998
DEFINITION vt74g04.r1 Barstead mouse irradiated colon MPLRB7 Mus musculus cDNA clone IMAGE:1176918 5' similar to gb:D38410 Mouse mRNA for intestinal trefoil factor (MOUSE);, mRNA sequence.
ACCESSION AA733452
VERSION AA733452.1 GI:2755119
KEYWORDS EST.
SOURCE house mouse.
ORGANISM Mus musculus
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
REFERENCE 1 (bases 1 to 77)
AUTHORS Marra,M., Hillier,L., Allen,M., Bowles,M., Dietrich,N., Dubuque,T., Geisel,S., Kucaba,T., Lacy,M., Le,M., Martin,J., Morris,M., Schellenberg,K., Steptoe,M., Tan,F., Underwood,K., Moore,B., Theising,B., Wylie,T., Lennon,G., Soares,B., Wilson,R. and Waterston,R.
TITLE The WashU-HHMI Mouse EST Project
JOURNAL Unpublished (1996)
COMMENT Contact: Marra M/Mouse EST Project
WashU-HHMI Mouse EST Project
Washington University School of MedicineP
4444 Forest Park Parkway, Box 8501, St. Louis, MO 63108
Tel: 314 286 1800
Fax: 314 286 1810
Email: mouseest@watson.wustl.edu
This clone is available royalty-free through LLNL ; contact the IMAGE Consortium (info@image.llnl.gov) for further information.
MGI:634766
Seq primer: -28m13 rev2 ET from Amersham
High quality sequence stop: 62.
FEATURES Location/Qualifiers
source 1. .77
/organism="Mus musculus"
/strain="FVB/N"
/db_xref="taxon:10090"
/clone="IMAGE:1176918"
/clone_lib="Barstead mouse irradiated colon MPLRB7"
/dev_stage="8 weeks"
/lab_host="DH10B"
/note="Vector: pT7T3D-Pac (Pharmacia) with a modified polylinker; Site_1: EcoRI; Site_2: NotI; Tissue obtained from 8 week old mouse. Colon was harvested 72 hours after irradiation with 1400 Gys. 1st strand cDNA was primed with a Not I - oligo(dT) primer [5'TGTTACGAATCTGAAGTGGGAGCGGCCGCCCTTTTTTTTTTTTTTTTTTTTTTTT T 3']; double-stranded cDNA was ligated to Eco RI adaptors [AATTCGGATCCTTG], digested with Not I and cloned into the Not I and Eco RI sites of the modified pT7T3 vector. Library constructed by Bob Barstead. "

BASE COUNT 12 a 20 c 24 g 21 t
ORIGIN

Query Match 74.0%; Score 14.8; DB 9; Length 77;
Best Local Similarity 88.9%; Pred. No. 2.3e+04;
Matches 16; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

```
Qy      3 CATGGCGGTCCTGATGCT 20
          ||||| |||||||| |||
Db     10 CATGGTGGTCCTGAAGCT 27
```

RESULT 5
BE866303
LOCUS BE866303 47 bp mRNA linear EST 27-SEP-2000
DEFINITION 601678950F1 NIH_MGC_53 Homo sapiens cDNA clone IMAGE:3961308 5', mRNA sequence.
ACCESSION BE866303
VERSION BE866303.1 GI:10315183
KEYWORDS EST.
SOURCE human.
ORGANISM Homo sapiens
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
REFERENCE 1 (bases 1 to 47)
AUTHORS NIH-MGC http://mgc.nci.nih.gov/.
TITLE National Institutes of Health, Mammalian Gene Collection (MGC)
JOURNAL Unpublished (1999)
COMMENT Contact: Robert Strausberg, Ph.D.
Email: cgapbs-r@mail.nih.gov
Tissue Procurement: ATCC
cDNA Library Preparation: CLONTECH Laboratories, Inc.
cDNA Library Arrayed by: The I.M.A.G.E. Consortium (LLNL)
DNA Sequencing by: Incyte Genomics, Inc.
Clone distribution: MGC clone distribution information can be found through the I.M.A.G.E. Consortium/LLNL at: image.llnl.gov
Plate: LLCM845 row: d column: 13
High quality sequence stop: 37.
FEATURES Location/Qualifiers
source 1. .47
/organism="Homo sapiens"
/db_xref="taxon:9606"
/clone="IMAGE:3961308"
/clone_lib="NIH_MGC_53"
/tissue_type="carcinoma, cell line"
/lab_host="DH10B (T1 phage-resistant)"
/note="Organ: bladder; Vector: pDNR-LIB (Clontech); Site_1: SfiI (ggccgcctcggcc); Site_2: SfiI (ggccattatggcc ); Double-stranded cDNA was prepared from cell line RNA. 5' and 3' adaptors were used in cloning as follows: 5' adaptor sequence: 5'-CACGGCCATTATGGCC-3' and 3' adaptor sequence: 5'-ATTCTAGAGGCCGAGGCGGCCGACATG-dT(30)BN-3' (where B = A, C, or G and N = A, C, G, or T). Average insert size 1.55 kb (range 0.9-4.0 kb). 15/15 colonies contained inserts by PCR. This library was enriched for full-length clones and was constructed by Clontech Laboratories (Palo Alto, CA)."
BASE COUNT 9 a 12 c 11 g 15 t
ORIGIN

Query Match 71.0%; Score 14.2; DB 12; Length 47;
Best Local Similarity 84.2%; Pred. No. 3.8e+04;
Matches 16; Conservative 0; Mismatches 3; Indels 0; Gaps 0;

```
Qy      2 CCATGGCGGTCCTGATGCT 20
          ||| |  ||||||||||||
Db     13 CCAGGAGGGTCCTGATGCT 31
```

RESULT 6
AU103949
LOCUS AU103949 50 bp mRNA linear EST 30-AUG-2001
DEFINITION AU103949 Sugano Homo sapiens cDNA library Homo sapiens cDNA clone

```
          HEP00494, mRNA sequence.
ACCESSION AU103949
VERSION   AU103949.1  GI:13553470
KEYWORDS  EST.
SOURCE    human.
  ORGANISM  Homo sapiens
            Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
            Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
REFERENCE 1  (bases 1 to 50)
  AUTHORS   Suzuki,Y., Taira,H., Tsunoda,T., Mizushima-Sugano,J., Sese,J., Hata
            ,H., Ota,T., Isogai,T., Tanaka,T., Morishita,S., Okubo,K., Sakaki
            ,Y., Nakamura,Y., Suyama,A. and Sugano,S.
  TITLE     Diverse transcriptional initiation revealed by fine, large-scale
            mapping of mRNA start sites
  JOURNAL   EMBO Rep. 2 (5), 388-393 (2001)
  MEDLINE   21270072
COMMENT     Contact: Yutaka Suzuki
            Department of Virology
            Institute of Medical Science, University of Tokyo
            4-6-1, Shirokanedai, Minatoku, Tokyo 108-8639, Japan
            Email: ysuzuki@ims.u-tokyo.ac.jp
            Suzuki,Y., Yoshitomo-Nakagawa,K., Maruyama,K., Suyama,A. and Sugano
            ,S. Construction and characterization of a full length-enriched and
            a 5'-end-enriched cDNA library. Gene 200 (1-2), 149-156 (1997).
FEATURES             Location/Qualifiers
     source          1. .50
                     /organism="Homo sapiens"
                     /db_xref="taxon:9606"
                     /clone="HEP00494"
                     /clone_lib="Sugano Homo sapiens cDNA library"
                     /note="Differential display comparison of untreated and
                     dimethylfumarate treated U937 cells"
BASE COUNT        5 a     19 c     15 g     11 t
ORIGIN

  Query Match             69.0%;  Score 13.8;  DB 9;  Length 50;
  Best Local Similarity   88.2%;  Pred. No. 5.5e+04;
  Matches   15;  Conservative    0;  Mismatches    2;  Indels    0;  Gaps    0;

Qy       2 CCATGGCGGTCCTGATG 18
           ||||||||  |||||  ||
Db      16 CCATGGCGCTCCTGCTG 32


RESULT 7
AU103955
LOCUS       AU103955                 50 bp    mRNA    linear   EST 30-AUG-2001
DEFINITION  AU103955 Sugano Homo sapiens cDNA library Homo sapiens cDNA clone
            HEP09974, mRNA sequence.
ACCESSION   AU103955
VERSION     AU103955.1  GI:13553476
KEYWORDS    EST.
SOURCE      human.
  ORGANISM  Homo sapiens
            Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
            Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
REFERENCE   1  (bases 1 to 50)
  AUTHORS   Suzuki,Y., Taira,H., Tsunoda,T., Mizushima-Sugano,J., Sese,J., Hata
            ,H., Ota,T., Isogai,T., Tanaka,T., Morishita,S., Okubo,K., Sakaki
            ,Y., Nakamura,Y., Suyama,A. and Sugano,S.
  TITLE     Diverse transcriptional initiation revealed by fine, large-scale
            mapping of mRNA start sites
  JOURNAL   EMBO Rep. 2 (5), 388-393 (2001)
  MEDLINE   21270072
COMMENT     Contact: Yutaka Suzuki
            Department of Virology
            Institute of Medical Science, University of Tokyo
            4-6-1, Shirokanedai, Minatoku, Tokyo 108-8639, Japan
            Email: ysuzuki@ims.u-tokyo.ac.jp
            Suzuki,Y., Yoshitomo-Nakagawa,K., Maruyama,K., Suyama,A. and Sugano
            ,S. Construction and characterization of a full length-enriched and
            a 5'-end-enriched cDNA library. Gene 200 (1-2), 149-156 (1997).
FEATURES             Location/Qualifiers
     source          1. .50
                     /organism="Homo sapiens"
                     /db_xref="taxon:9606"
                     /clone="HEP09974"
                     /clone_lib="Sugano Homo sapiens cDNA library"
                     /note="Differential display comparison of untreated and
                     dimethylfumarate treated U937 cells"
BASE COUNT        7 a     22 c     13 g      8 t
ORIGIN

  Query Match             69.0%;  Score 13.8;  DB 9;  Length 50;
  Best Local Similarity   88.2%;  Pred. No. 5.5e+04;
  Matches   15;  Conservative    0;  Mismatches    2;  Indels    0;  Gaps    0;

Qy       2 CCATGGCGGTCCTGATG 18
           ||||||||  |||||  ||
Db      34 CCATGGCGCTCCTGCTG 50


RESULT 8
BM369321
LOCUS       BM369321                 86 bp    mRNA    linear   EST 23-JUL-2002
DEFINITION  EBem07_SQ003_D24_R embryo, 28 DPA, no treatment, cv Optic, EBem07
            Hordeum vulgare cDNA clone EBem07_SQ003_D24 5', mRNA sequence.
ACCESSION   BM369321
VERSION     BM369321.2  GI:21936466
KEYWORDS    EST.
SOURCE      Hordeum vulgare.
  ORGANISM  Hordeum vulgare
            Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
            Spermatophyta; Magnoliophyta; Liliopsida; Poales; Poaceae; Pooideae
            ; Triticeae; Hordeum.
REFERENCE   1  (bases 1 to 86)
  AUTHORS   Hedley,P., Liu,H., Caldwell,D., McCallum,N., Mudie,S., Cardle,L.,
            Ramsay,L., Machray,G., Marshall,D.F.M. and Waugh,R.
  TITLE     Development of Barley Transcriptome Resources
  JOURNAL   Unpublished (2001)
COMMENT     On Jan 10, 2002 this sequence version replaced gi:18112711.
            Contact: Waugh R, Marshall DF
            Genome Dynamics/Computational Biology
            Scottish Crop Research Institute
            Invergowrie, Dundee, DD2 5DA, Scotland, UK
            Tel: 00 44 1382 562731
            Fax: 00 44 1382 562426
            Email: est@scri.sari.ac.uk
            All sequence has a Phred quality score of 20 or over
            Seq primer: M13 reverse.
FEATURES             Location/Qualifiers
     source          1. .86
                     /organism="Hordeum vulgare"
                     /cultivar="Optic"
                     /db_xref="taxon:4513"
                     /clone="EBem07_SQ003_D24"
                     /clone_lib="embryo, 28 DPA, no treatment, cv Optic,
                     EBem07"
                     /tissue_type="embryo"
                     /dev_stage="28 DPA"
                     /lab_host="DH10B"
                     /note="Vector: pSPORT1; Site_1: Sal I; Site_2: Not I;
                     Non-normalised library, directionally cloned into pSPORT1.
                     Derived from embryos dissected from developing grains (28
                     days post anthesis) in glasshouse grown barley plants.
                     Developed as part of the barley transcriptome resources of
                     BBSRC/SEERAD funded cereal IGF (Investigating Gene
                     Function) project."
BASE COUNT       17 a     29 c     16 g     24 t
ORIGIN

  Query Match             69.0%;  Score 13.8;  DB 13;  Length 86;
  Best Local Similarity   88.2%;  Pred. No. 6e+04;
  Matches   15;  Conservative    0;  Mismatches    2;  Indels    0;  Gaps    0;

Qy       1 TCCATGGCGGTCCTGAT 17
```

```
          |||||||||| ||| ||
Db     43 TCCATGGCGGACCTCAT 59


RESULT 9
AA984193/c
LOCUS       AA984193                 97 bp    mRNA    linear   EST 27-MAY-1998
DEFINITION  am82b09.s1 Stratagene schizo brain S11 Homo sapiens cDNA clone
            IMAGE:1629593 3', mRNA sequence.
ACCESSION   AA984193
VERSION     AA984193.1  GI:3162718
KEYWORDS    EST.
SOURCE      human.
  ORGANISM  Homo sapiens
            Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
            Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
REFERENCE   1  (bases 1 to 97)
  AUTHORS   Hillier,L., Allen,M., Bowles,L., Dubuque,T., Geisel,G., Jost,S.,
            Krizman,D., Kucaba,T., Lacy,M., Le,N., Lennon,G., Marra,M., Martin
            ,J., Moore,B., Schellenberg,K., Steptoe,M., Tan,F., Theising,B.,
            White,Y., Wylie,T., Waterston,R. and Wilson,R.
  TITLE     WashU-NCI human EST Project
  JOURNAL   Unpublished (1997)
COMMENT     Contact: Wilson RK
            Washington University School of Medicine
            4444 Forest Park Parkway, Box 8501, St. Louis, MO 63108
            Tel: 314 286 1800
            Fax: 314 286 1810
            Email: est@watson.wustl.edu
            This clone is available royalty-free through LLNL ; contact the
            IMAGE Consortium (info@image.llnl.gov) for further information.
            Possible reversed clone: polyT not found
            Seq primer: -40m13 fwd. ET from Amersham
            High quality sequence stop: 78.
FEATURES             Location/Qualifiers
     source          1. .97
                     /organism="Homo sapiens"
                     /db_xref="taxon:9606"
                     /clone="IMAGE:1629593"
                     /clone_lib="Stratagene schizo brain S11"
                     /sex="male"
                     /tissue_type="schizophrenic brain S-11 frontal lobe"
                     /dev_stage="34 years old"
                     /lab_host="SOLR (kanamycin resistant)"
                     /note="Vector: Bluescript SK-; Site_1: EcoRI;  Library
                     constructed from S-11 frontal lobe, male, 34 years old,
                     50% caucasian, 50% Aleutian.  Schizophrenic suicide.
                     Random primed into EcoRI site of ZAP II Vector.  Mass
                     excised. Custom library. Avg insert length 1.4kb.
                     Material obtained by Johnston N., Torrey, E.F., Yolken R.,
                     and the Stanley Neuropathology Consortium - Analysis of
                     RNAs from the Brains of Individuals with Psychiatric
                     Diseases (Unpublished) Stanley Neurovirology Laboratory,
                     Johns Hopkins School of Medicine, Baltimore MD."
BASE COUNT       19 a     28 c     27 g     23 t
ORIGIN

  Query Match            69.0%;  Score 13.8;  DB 9;  Length 97;
  Best Local Similarity  88.2%;  Pred. No. 6.1e+04;
  Matches   15;  Conservative    0;  Mismatches    2;  Indels    0;  Gaps    0;

Qy       4 ATGGCGGTCCTGATGCT 20
           |||||||||||| | |
Db      86 ATGGCGGTCCTGAAGGT 70


RESULT 10
AZ788045
LOCUS       AZ788045                 67 bp    DNA     linear   GSS 16-FEB-2001
DEFINITION  2M0034G22R Mouse 10kb plasmid UUGC1M library Mus musculus genomic
            clone UUGC2M0034G22 R, DNA sequence.
ACCESSION   AZ788045
VERSION     AZ788045.1  GI:12927448
KEYWORDS    GSS.
SOURCE      house mouse.
  ORGANISM  Mus musculus
            Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
            Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
REFERENCE   1  (bases 1 to 67)
  AUTHORS   Dunn,D., Aoyagi,A., Barber,M., Beacorn,T., Duval,B., Hamil,C.,
            Islam,H., Longacre,S., Mahmoud,M., Meenen,E., Pedersen,T., Reilly
            ,M., Rose,M., Rose,R., Stokes,R., Tingey,A., von Niederhausern,A.
            and Wright,D.,Weiss,R.
  TITLE     Mouse whole genome scaffolding with paired end reads from 10kb
            plasmid inserts
  JOURNAL   Unpublished (2000)
COMMENT     Contact: Robert B. Weiss
            University of Utah Genome Center
            University of Utah
            Rm. 308, Biomedical Polymers Research Bldg., 20 S. 2030 E., SLC, UT
            84112, USA
            Tel: 801 585 5606
            Fax: 801 585 7177
            Email: ddunn@genetics.utah.edu
            Insert Length: 10000   Std Error: 0.00
            Plate: 0034  row: G  column: 22
            Seq primer: CACACAGGAAACAGCTATGACC
            Class: plasmid ends
            High quality sequence stop: 67.
FEATURES             Location/Qualifiers
     source          1. .67
                     /organism="Mus musculus"
                     /strain="C57BL/6J"
                     /db_xref="taxon:10090"
                     /clone="UUGC2M0034G22"
                     /clone_lib="Mouse 10kb plasmid UUGC1M library"
                     /sex="Male"
                     /lab_host="E. Coli strain XL10-Gold, T1-resistant, F-"
                     /note="Vector: PWD42nv; Purified genomic DNA from M.
                     musculus C57BL/6J (male) was obtained  from the Jackson
                     Laboratory Mouse DNA Resource
                     (http://www.jax.org/resources/documents/dnares/). The DNA
                     was hydrodynamically sheared by repeated passage through a
                     0.005 inch orifice at constant velocity. The sheared DNA
                     was blunt end-repaired with T4 DNA polymerase and T4
                     polynucleotide kinase. Adaptor oligonucleotides were
                     ligated to the blunt ends in high  molar excess. The
                     adaptored DNA was purified and size-selected for a 9.5 to
                     10.5 kb range using preparative agarose gel
                     electrophoresis. Vector DNA was prepared from a derivative
                     of pWD42 (gi|4732114|gb|AF129072.1), a copy-number
                     inducible derivative of plasmid R1. The vector was ligated
                     with adaptors complementary to the insert adaptors and
                     purified. The sheared, adaptored mouse DNA was annealed to
                     adaptored vector DNA, and transformed into
                     chemically-competent E. coli XL10-Gold (Stratagene) cells
                     and selected for ampicillin resistance."
BASE COUNT        8 a     18 c     25 g     16 t
ORIGIN

  Query Match            68.0%;  Score 13.6;  DB 17;  Length 67;
  Best Local Similarity  80.0%;  Pred. No. 7e+04;
  Matches   16;  Conservative    0;  Mismatches    4;  Indels    0;  Gaps    0;

Qy       1 TCCATGGCGGTCCTGATGCT 20
           ||| |||| | ||||| |||
Db      15 TCCCTGGCTGGCCTGAGGCT 34


RESULT 11
AZ804381/c
LOCUS       AZ804381                 88 bp    DNA     linear   GSS 16-FEB-2001
DEFINITION  2M0065F18F Mouse 10kb plasmid UUGC1M library Mus musculus genomic
            clone UUGC2M0065F18 F, DNA sequence.
ACCESSION   AZ804381
VERSION     AZ804381.1  GI:12956704
```

```
KEYWORDS    GSS.
SOURCE      house mouse.
  ORGANISM  Mus musculus
            Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
            Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
REFERENCE   1  (bases 1 to 88)
  AUTHORS   Dunn,D., Aoyagi,A., Barber,M., Beacorn,T., Duval,B., Hamil,C.,
            Islam,H., Longacre,S., Mahmoud,M., Meenen,E., Pedersen,T., Reilly
            ,M., Rose,M., Rose,R., Stokes,R., Tingey,A., von Niederhausern,A.
            and Wright,D.,Weiss,R.
  TITLE     Mouse whole genome scaffolding with paired end reads from 10kb
            plasmid inserts
  JOURNAL   Unpublished (2000)
COMMENT     Contact: Robert B. Weiss
            University of Utah Genome Center
            University of Utah
            Rm. 308, Biomedical Polymers Research Bldg., 20 S. 2030 E., SLC, UT
            84112, USA
            Tel: 801 585 5606
            Fax: 801 585 7177
            Email: ddunn@genetics.utah.edu
            Insert Length: 10000   Std Error: 0.00
            Plate: 0065  row: F  column: 18
            Seq primer: CGTTGTAAAACGACGGCCAGT
            Class: plasmid ends
            High quality sequence stop: 88.
FEATURES             Location/Qualifiers
     source          1. .88
                     /organism="Mus musculus"
                     /strain="C57BL/6J"
                     /db_xref="taxon:10090"
                     /clone="UUGC2M0065F18"
                     /clone_lib="Mouse 10kb plasmid UUGC1M library"
                     /sex="Male"
                     /lab_host="E. Coli strain XL10-Gold, T1-resistant, F-"
                     /note="Vector: PWD42nv; Purified genomic DNA from M.
                     musculus C57BL/6J (male) was obtained  from the Jackson
                     Laboratory Mouse DNA Resource
                     (http://www.jax.org/resources/documents/dnares/). The DNA
                     was hydrodynamically sheared by repeated passage through a
                     0.005 inch orifice at constant velocity. The sheared DNA
                     was blunt end-repaired with T4 DNA polymerase and T4
                     polynucleotide kinase. Adaptor oligonucleotides were
                     ligated to the blunt ends in high  molar excess. The
                     adaptored DNA was purified and size-selected for a 9.5 to
                     10.5 kb range using preparative agarose gel
                     electrophoresis. Vector DNA was prepared from a derivative
                     of pWD42 (gi|4732114|gb|AF129072.1), a copy-number
                     inducible derivative of plasmid R1. The vector was ligated
                     with adaptors complementary to the insert adaptors and
                     purified. The sheared, adaptored mouse DNA was annealed to
                     adaptored vector DNA, and transformed into
                     chemically-competent E. coli XL10-Gold (Stratagene) cells
                     and selected for ampicillin resistance."
BASE COUNT       26 a     20 c     31 g     11 t
ORIGIN

  Query Match             68.0%;  Score 13.6;  DB 17;  Length 88;
  Best Local Similarity   80.0%;  Pred. No. 7.2e+04;
  Matches   16;  Conservative    0;  Mismatches    4;  Indels    0;  Gaps    0;

Qy       1 TCCATGGCGGTCCTGATGCT 20
           ||| | | ||||| ||||||
Db      30 TCCTTTGGGGTCCAGATGCT 11


RESULT 12
AA020129
LOCUS       AA020129                100 bp    mRNA    linear   EST 21-JAN-1997
DEFINITION  mh50a10.r1 Soares mouse placenta 4NbMP13.5 14.5 Mus musculus cDNA
            clone IMAGE:445914 5' similar to SW:COPZ_BOVIN P35604 COATOMER ZETA
            SUBUNIT ;, mRNA sequence.
ACCESSION   AA020129
VERSION     AA020129.1  GI:1483877
KEYWORDS    EST.
SOURCE      house mouse.
  ORGANISM  Mus musculus
            Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
            Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
REFERENCE   1  (bases 1 to 100)
  AUTHORS   Marra,M., Hillier,L., Allen,M., Bowles,M., Dietrich,N., Dubuque,T.,
            Geisel,S., Kucaba,T., Lacy,M., Le,M., Martin,J., Morris,M.,
            Schellenberg,K., Steptoe,M., Tan,F., Underwood,K., Moore,B.,
            Theising,B., Wylie,T., Lennon,G., Soares,B., Wilson,R. and
            Waterston,R.
  TITLE     The WashU-HHMI Mouse EST Project
  JOURNAL   Unpublished (1996)
COMMENT     Contact: Marra M/Mouse EST Project
            WashU-HHMI Mouse EST Project
            Washington University School of MedicineP
            4444 Forest Park Parkway, Box 8501, St. Louis, MO 63108
            Tel: 314 286 1800
            Fax: 314 286 1810
            Email: mouseest@watson.wustl.edu
            This clone is available royalty-free through LLNL ; contact the
            IMAGE Consortium (info@image.llnl.gov) for further information.
            MGI:271250
            Trace considered overall poor quality
            Possible reversed clone: similarity on wrong strand
            Seq primer: -28M13 rev2 from Amersham
            High quality sequence stop: 1.
FEATURES             Location/Qualifiers
     source          1. .100
                     /organism="Mus musculus"
                     /strain="C57BL/6J"
                     /db_xref="taxon:10090"
                     /clone="IMAGE:445914"
                     /clone_lib="Soares mouse placenta 4NbMP13.5 14.5"
                     /sex="unknown"
                     /tissue_type="placenta"
                     /dev_stage="adult"
                     /lab_host="DH10B"
                     /note="Organ: placenta; Vector: pT7T3D-Pac (Pharmacia)
                     with a modified polylinker; Site_1: Not I; Site_2: Eco RI;
                     1st strand cDNA was primed with a Not I - oligo(dT) primer
                     [5'
                     TGTTACCAATCTGAAGTGGGAGCGGCCGCGGAAATTTTTTTTTTTTTTTTTTTTTTT
                     T 3']; double-stranded cDNA was ligated to Eco RI adaptors
                     (Pharmacia), digested with Not I and cloned into the Not I
                     and Eco RI sites of the modified pT7T3 vector. Library
                     went through one round of normalization, and was
                     constructed by Bento Soares and M.Fatima Bonaldo."
BASE COUNT       28 a     18 c     19 g     35 t
ORIGIN

  Query Match             68.0%;  Score 13.6;  DB 9;  Length 100;
  Best Local Similarity   80.0%;  Pred. No. 7.4e+04;
  Matches   16;  Conservative    0;  Mismatches    4;  Indels    0;  Gaps    0;

Qy       1 TCCATGGCGGTCCTGATGCT 20
           ||| ||  ||||| ||||||
Db      23 TCCGTGAAGGTCCAGATGCT 42


RESULT 13
AU105746
LOCUS       AU105746                50 bp    mRNA    linear   EST 30-AUG-2001
DEFINITION  AU105746 Sugano Homo sapiens cDNA library Homo sapiens cDNA clone
            HEP18528, mRNA sequence.
ACCESSION   AU105746
VERSION     AU105746.1  GI:13555267
KEYWORDS    EST.
SOURCE      human.
  ORGANISM  Homo sapiens
            Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
            Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
```

```
REFERENCE   1  (bases 1 to 50)
  AUTHORS   Suzuki,Y., Taira,H., Tsunoda,T., Mizushima-Sugano,J., Sese,J., Hata
            ,H., Ota,T., Isogai,T., Tanaka,T., Morishita,S., Okubo,K., Sakaki
            ,Y., Nakamura,Y., Suyama,A. and Sugano,S.
  TITLE     Diverse transcriptional initiation revealed by fine, large-scale
            mapping of mRNA start sites
  JOURNAL   EMBO Rep. 2 (5), 388-393 (2001)
  MEDLINE   21270072
COMMENT     Contact: Yutaka Suzuki
            Department of Virology
            Institute of Medical Science, University of Tokyo
            4-6-1, Shirokanedai, Minatoku, Tokyo 108-8639, Japan
            Email: ysuzuki@ims.u-tokyo.ac.jp
            Suzuki,Y., Yoshitomo-Nakagawa,K., Maruyama,K., Suyama,A. and Sugano
            ,S. Construction and characterization of a full length-enriched and
            a 5'-end-enriched cDNA library. Gene 200 (1-2), 149-156 (1997).
FEATURES             Location/Qualifiers
     source          1. .50
                     /organism="Homo sapiens"
                     /db_xref="taxon:9606"
                     /clone="HEP18528"
                     /clone_lib="Sugano Homo sapiens cDNA library"
                     /note="Differential display comparison of untreated and
                     dimethylfumarate treated U937 cells"
BASE COUNT        7 a     13 c     18 g     12 t
ORIGIN

  Query Match             66.0%;  Score 13.2;  DB 9;  Length 50;
  Best Local Similarity   83.3%;  Pred. No. 9.7e+04;
  Matches   15;  Conservative    0;  Mismatches    3;  Indels    0;  Gaps    0;

Qy       3 CATGGCGGTCCTGATGCT 20
           |||||||| | | |||||
Db      17 CATGGCGGCCTTCATGCT 34


RESULT 14
AU105747
LOCUS       AU105747                 50 bp    mRNA    linear   EST 30-AUG-2001
DEFINITION  AU105747 Sugano Homo sapiens cDNA library Homo sapiens cDNA clone
            HSI05704, mRNA sequence.
ACCESSION   AU105747
VERSION     AU105747.1  GI:13555268
KEYWORDS    EST.
SOURCE      human.
  ORGANISM  Homo sapiens
            Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
            Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
REFERENCE   1  (bases 1 to 50)
  AUTHORS   Suzuki,Y., Taira,H., Tsunoda,T., Mizushima-Sugano,J., Sese,J., Hata
            ,H., Ota,T., Isogai,T., Tanaka,T., Morishita,S., Okubo,K., Sakaki
            ,Y., Nakamura,Y., Suyama,A. and Sugano,S.
  TITLE     Diverse transcriptional initiation revealed by fine, large-scale
            mapping of mRNA start sites
  JOURNAL   EMBO Rep. 2 (5), 388-393 (2001)
  MEDLINE   21270072
COMMENT     Contact: Yutaka Suzuki
            Department of Virology
            Institute of Medical Science, University of Tokyo
            4-6-1, Shirokanedai, Minatoku, Tokyo 108-8639, Japan
            Email: ysuzuki@ims.u-tokyo.ac.jp
            Suzuki,Y., Yoshitomo-Nakagawa,K., Maruyama,K., Suyama,A. and Sugano
            ,S. Construction and characterization of a full length-enriched and
            a 5'-end-enriched cDNA library. Gene 200 (1-2), 149-156 (1997).
FEATURES             Location/Qualifiers
     source          1. .50
                     /organism="Homo sapiens"
                     /db_xref="taxon:9606"
                     /clone="HSI05704"
                     /clone_lib="Sugano Homo sapiens cDNA library"
                     /note="Differential display comparison of untreated and
                     dimethylfumarate treated U937 cells"
BASE COUNT        8 a     12 c     17 g     13 t
ORIGIN

  Query Match             66.0%;  Score 13.2;  DB 9;  Length 50;
  Best Local Similarity   83.3%;  Pred. No. 9.7e+04;
  Matches   15;  Conservative    0;  Mismatches    3;  Indels    0;  Gaps    0;

Qy       3 CATGGCGGTCCTGATGCT 20
           |||||||| | | |||||
Db      27 CATGGCGGCCTTCATGCT 44


RESULT 15
AW249457/c
LOCUS       AW249457                 62 bp    mRNA    linear   EST 07-JAN-2000
DEFINITION  2821191.3prime NIH_MGC_7 Homo sapiens cDNA clone IMAGE:2821191 3',
            mRNA sequence.
ACCESSION   AW249457
VERSION     AW249457.1  GI:6592450
KEYWORDS    EST.
SOURCE      human.
  ORGANISM  Homo sapiens
            Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
            Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
REFERENCE   1  (bases 1 to 62)
  AUTHORS   NIH-MGC http://mgc.nci.nih.gov/.
  TITLE     National Institutes of Health, Mammalian Gene Collection (MGC)
  JOURNAL   Unpublished (1999)
COMMENT     Other_ESTs: 2821191.5prime
            Contact: Robert Strausberg, Ph.D.
            Email: cgapbs-r@mail.nih.gov
            Tissue Procurement: DCTD/DTP cDNA Library Preparation: Ling
            Hong/Rubin Laboratory cDNA Library Arrayed by: The I.M.A.G.E.
            Consortium (LLNL) DNA Sequencing by: Berkeley MGC sequencing
            project Clone distribution: MGC clone distribution information can
            be found through the I.M.A.G.E. Consortium/LLNL at:
            www-bio.llnl.gov/bbrp/image/image.html Base Calling / Quality
            Scores: PHRED from University of Washington Genome Center. Vector
            Trimming: cross_match from University of Washington Genome Center
            PHRAP suite. Poly-T Identification: patMatch.pl from Berkeley
            Drosophila Genome Project. University of Washington Genome Center:
            http://www.genome.washington.edu Low Quality Sequence: 10
            contiguous PHRED high quality bases following vector sequence. Very
            Low Quality Sequence: Trace file contained 62 contiguous distinct
            peaks following vector sequence. Polyadenylation: Based upon the
            presence of a XhoI site followed by a run of 14 or more T residues
            at the beginning of the sequence, this cDNA insert was
            polyadenylated.
            Plate: LLCM6  row: C  column: 16
            High quality sequence stop: 10.
FEATURES             Location/Qualifiers
     source          1. .62
                     /organism="Homo sapiens"
                     /db_xref="taxon:9606"
                     /clone="IMAGE:2821191"
                     /clone_lib="NIH_MGC_7"
                     /tissue_type="small cell carcinoma"
                     /cell_line="MGC3"
                     /lab_host="DH10B (phage-resistant)"
                     /note="Organ: lung; Vector: pOTB7; Site_1: XhoI; Site_2:
                     EcoRI; cDNA made by oligo-dT priming.  Directionally
                     cloned into EcoRI/XhoI sites using the following 5'
                     adaptor: GGCACGAG(G).  Size-selected >500bp for average
                     insert size 1.8kb.  Library constructed by Ling Hong in
                     the laboratory of Gerald M. Rubin (University of
                     California, Berkeley) using  ZAP-cDNA synthesis kit
                     (Stratagene) and Superscript II RT (Life Technologies)."
BASE COUNT       19 a     11 c     10 g     22 t
ORIGIN

  Query Match             66.0%;  Score 13.2;  DB 10;  Length 62;
  Best Local Similarity   83.3%;  Pred. No. 1e+05;
  Matches   15;  Conservative    0;  Mismatches    3;  Indels    0;  Gaps    0;
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Qy       1 TCCATGGCGGTCCTGATG 18
           | ||||||||||  ||  ||
Db      28 TTCATGGCGGTCGTGTTG 11
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Search completed: March 2, 2003, 00:41:00
Job time : 1063.75 secs

GenCore version 5.1.4_p5_4578


OM nucleic - nucleic search, using sw model

Run on: March 1, 2003, 22:53:06 ; Search time 41 Seconds
(without alignments)
149.598 Million cell updates/sec

Title: US-09-818-918-39
Perfect score: 20
Sequence: 1 tccatggcggtcctgatgct 20

Scoring table: IDENTITY_NUC
Gapop 10.0 , Gapext 1.0

Searched: 441362 seqs, 153338381 residues

Total number of hits satisfying chosen parameters: 687286

Minimum DB seq length: 0
Maximum DB seq length: 100

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : Issued_Patents_NA:*
1: /cgn2_6/ptodata/1/ina/5A_COMB.seq:*
2: /cgn2_6/ptodata/1/ina/5B_COMB.seq:*
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4: /cgn2_6/ptodata/1/ina/6B_COMB.seq:*
5: /cgn2_6/ptodata/1/ina/PCTUS_COMB.seq:*
6: /cgn2_6/ptodata/1/ina/backfiles1.seq:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

| Result No. | Score | % Query Match | Length | DB | ID | Description |
|---|---|---|---|---|---|---|
| 1 | 20 | 100.0 | 20 | 4 | US-08-738-652-39 | Sequence 39, Appl |
| 2 | 20 | 100.0 | 20 | 4 | US-09-286-098-44 | Sequence 44, Appl |
| 3 | 20 | 100.0 | 20 | 4 | US-08-960-774-34 | Sequence 34, Appl |
| 4 | 20 | 100.0 | 20 | 4 | US-09-325-193A-37 | Sequence 37, Appl |
| 5 | 20 | 100.0 | 20 | 4 | US-09-191-170-39 | Sequence 39, Appl |
| 6 | 18.4 | 92.0 | 20 | 1 | US-08-436-714-7 | Sequence 7, Appli |
| 7 | 18.4 | 92.0 | 20 | 1 | US-08-442-705-7 | Sequence 7, Appli |
| 8 | 18.4 | 92.0 | 20 | 1 | US-08-332-829-7 | Sequence 7, Appli |
| 9 | 18.4 | 92.0 | 20 | 3 | US-08-386-063-21 | Sequence 21, Appl |
| 10 | 18.4 | 92.0 | 20 | 4 | US-08-386-063-21 | Sequence 21, Appl |
| 11 | 18.4 | 92.0 | 20 | 4 | US-08-738-652-31 | Sequence 31, Appl |
| 12 | 18.4 | 92.0 | 20 | 4 | US-08-738-652-33 | Sequence 33, Appl |
| 13 | 18.4 | 92.0 | 20 | 4 | US-08-738-652-34 | Sequence 34, Appl |
| 14 | 18.4 | 92.0 | 20 | 4 | US-08-738-652-37 | Sequence 37, Appl |
| 15 | 18.4 | 92.0 | 20 | 4 | US-08-738-652-38 | Sequence 38, Appl |
| 16 | 18.4 | 92.0 | 20 | 4 | US-08-738-652-40 | Sequence 40, Appl |
| 17 | 18.4 | 92.0 | 20 | 4 | US-09-286-098-22 | Sequence 22, Appl |
| 18 | 18.4 | 92.0 | 20 | 4 | US-09-286-098-23 | Sequence 23, Appl |
| 19 | 18.4 | 92.0 | 20 | 4 | US-09-286-098-42 | Sequence 42, Appl |
| 20 | 18.4 | 92.0 | 20 | 4 | US-09-286-098-43 | Sequence 43, Appl |
| 21 | 18.4 | 92.0 | 20 | 4 | US-09-286-098-45 | Sequence 45, Appl |
| 22 | 18.4 | 92.0 | 20 | 4 | US-08-960-774-28 | Sequence 28, Appl |
| 23 | 18.4 | 92.0 | 20 | 4 | US-08-960-774-33 | Sequence 33, Appl |
| 24 | 18.4 | 92.0 | 20 | 4 | US-08-960-774-35 | Sequence 35, Appl |
| 25 | 18.4 | 92.0 | 20 | 4 | US-08-960-774-101 | Sequence 101, App |
| 26 | 18.4 | 92.0 | 20 | 4 | US-08-960-774-102 | Sequence 102, App |
| 27 | 18.4 | 92.0 | 20 | 4 | US-09-325-193A-17 | Sequence 17, Appl |
| 28 | 18.4 | 92.0 | 20 | 4 | US-09-325-193A-18 | Sequence 18, Appl |
| 29 | 18.4 | 92.0 | 20 | 4 | US-09-325-193A-35 | Sequence 35, Appl |
| 30 | 18.4 | 92.0 | 20 | 4 | US-09-325-193A-36 | Sequence 36, Appl |
| 31 | 18.4 | 92.0 | 20 | 4 | US-09-325-193A-38 | Sequence 38, Appl |
| 32 | 18.4 | 92.0 | 20 | 4 | US-09-191-170-20 | Sequence 20, Appl |
| 33 | 18.4 | 92.0 | 20 | 4 | US-09-191-170-22 | Sequence 22, Appl |
| 34 | 18.4 | 92.0 | 20 | 4 | US-09-191-170-23 | Sequence 23, Appl |
| 35 | 18.4 | 92.0 | 20 | 4 | US-09-191-170-38 | Sequence 38, Appl |
| 36 | 18.4 | 92.0 | 20 | 4 | US-09-191-170-40 | Sequence 40, Appl |
| 37 | 17.4 | 87.0 | 19 | 4 | US-09-286-098-20 | Sequence 20, Appl |
| 38 | 17.4 | 87.0 | 20 | 3 | US-08-386-063-23 | Sequence 23, Appl |
| 39 | 17.4 | 87.0 | 20 | 3 | US-08-386-063-24 | Sequence 24, Appl |
| 40 | 17.4 | 87.0 | 20 | 4 | US-08-386-063-23 | Sequence 23, Appl |
| 41 | 17.4 | 87.0 | 20 | 4 | US-08-386-063-24 | Sequence 24, Appl |
| 42 | 17.4 | 87.0 | 20 | 4 | US-08-960-774-30 | Sequence 30, Appl |
| 43 | 17.4 | 87.0 | 20 | 4 | US-08-960-774-31 | Sequence 31, Appl |
| 44 | 16.8 | 84.0 | 20 | 2 | US-09-133-774-11 | Sequence 11, Appl |
| 45 | 16.8 | 84.0 | 20 | 3 | US-08-386-063-22 | Sequence 22, Appl |

ALIGNMENTS

RESULT 1
US-08-738-652-39
; Sequence 39, Application US/08738652B
; Patent No. 6207646
; GENERAL INFORMATION:
; APPLICANT: Krieg, Arthur M.
; TITLE OF INVENTION: Immunostimulatory Nucleic Acid Molecules
; FILE REFERENCE: C1039/7004 HCL
; CURRENT APPLICATION NUMBER: US/08/738,652B
; CURRENT FILING DATE: 1996-10-30
; EARLIER APPLICATION NUMBER: US 08/276,358
; EARLIER FILING DATE: 1994-07-15
; EARLIER APPLICATION NUMBER: US 08/386,063
; EARLIER FILING DATE: 1995-02-07
; NUMBER OF SEQ ID NOS: 55
; SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 39
; LENGTH: 20
; TYPE: DNA
; ORGANISM: Artificial Sequence
; FEATURE:
; OTHER INFORMATION: Synthetic oligonucleotide
US-08-738-652-39

Query Match 100.0%; Score 20; DB 4; Length 20;
Best Local Similarity 100.0%; Pred. No. 1;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 TCCATGGCGGTCCTGATGCT 20
||||||||||||||||||||
Db 1 TCCATGGCGGTCCTGATGCT 20

RESULT 2
US-09-286-098-44
; Sequence 44, Application US/09286098
; Patent No. 6218371
; GENERAL INFORMATION:
; APPLICANT: Krieg, Arthur M.
; APPLICANT: Weiner, George
; TITLE OF INVENTION: Methods and Products for Stimulating the
; TITLE OF INVENTION: Immune System Using Immunotherapeutic Oligonucleotides and
; TITLE OF INVENTION: Cytokines
; FILE REFERENCE: C1039/7026/HCL
; CURRENT APPLICATION NUMBER: US/09/286,098
; CURRENT FILING DATE: 1999-04-02
; EARLIER APPLICATION NUMBER: US 60/080,729
; EARLIER FILING DATE: 1998-04-03
; NUMBER OF SEQ ID NOS: 105
; SOFTWARE: FastSEQ for Windows Version 3.0

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; SEQ ID NO 44
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic Sequence
US-09-286-098-44

  Query Match             100.0%;  Score 20;  DB 4;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 1;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGGCGGTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATGGCGGTCCTGATGCT 20


RESULT 3
US-08-960-774-34
; Sequence 34, Application US/08960774
; Patent No. 6239116
;  GENERAL INFORMATION:
;    APPLICANT:  Krieg et al.,
;    TITLE OF INVENTION:  IMMUNOSTIMULATORY NUCLEIC ACID MOLECULES
;    NUMBER OF SEQUENCES:  111
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Fish & Richardson P.C.
;      STREET:  4225 Executive Square, Suite 1400
;      CITY:  La Jolla
;      STATE:  CA
;      COUNTRY:  USA
;      ZIP:  92037
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  ASCII text
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/960,774
;      FILING DATE:  30-October-1997
;      CLASSIFICATION:  514
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  U.S. Serial No. 6239116  08/738,652
;      FILING DATE:  October 30, 1996
;      CLASSIFICATION:  514
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Haile, Lisa A.
;      REGISTRATION NUMBER:  38,347
;      REFERENCE/DOCKET NUMBER:  08918/012001
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  619/678-5070
;      TELEFAX:  619/678-5099
;  INFORMATION FOR SEQ ID NO:  34:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  20 base pairs
;      TYPE:  nucleic acid
;      STRANDEDNESS:  single
;      TOPOLOGY:  linear
;    MOLECULE TYPE:  cDNA
US-08-960-774-34

  Query Match             100.0%;  Score 20;  DB 4;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 1;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGGCGGTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATGGCGGTCCTGATGCT 20


RESULT 4
US-09-325-193A-37
; Sequence 37, Application US/09325193A
; Patent No. 6406705
; GENERAL INFORMATION:
;  APPLICANT:  Davis, Heather L.
;  APPLICANT:  Schorr, Joachim
;  APPLICANT:  Krieg, Arthur M.
;  TITLE OF INVENTION:  Use of Nucleic Acids Containing
;  TITLE OF INVENTION:  Unmethylated CpG Dinucleotide as an Adjuvant
;  FILE REFERENCE:  C1039/7025/HCL
;  CURRENT APPLICATION NUMBER: US/09/325,193A
;  CURRENT FILING DATE:  1999-06-03
;  PRIOR APPLICATION NUMBER:  US 09/154,614
;  PRIOR FILING DATE:  1998-09-16
;  PRIOR APPLICATION NUMBER:  PCT/US98/04703
;  PRIOR FILING DATE:  1998-03-10
;  PRIOR APPLICATION NUMBER:  US 60/040,376
;  PRIOR FILING DATE:  1997-03-10
;  NUMBER OF SEQ ID NOS:  98
;  SOFTWARE:  FastSEQ for Windows Version 3.0
; SEQ ID NO 37
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic Oligonucleotide
US-09-325-193A-37

  Query Match             100.0%;  Score 20;  DB 4;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 1;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGGCGGTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATGGCGGTCCTGATGCT 20


RESULT 5
US-09-191-170-39
; Sequence 39, Application US/09191170
; Patent No. 6429199
; GENERAL INFORMATION:
;  APPLICANT: Krieg, Arthur M.
;  APPLICANT: Hartmann, Gunther
;  TITLE OF INVENTION: Immunostimulatory Nucleic Acid Molecules
;  TITLE OF INVENTION: for Activating Dendritic Cells
;  FILE REFERENCE: C1039/7017
;  CURRENT APPLICATION NUMBER: US/09/191,170
;  CURRENT FILING DATE: 1998-11-13
;  EARLIER APPLICATION NUMBER: US 08/960,774
;  EARLIER FILING DATE: 1997-10-30
;  EARLIER APPLICATION NUMBER: US 08/738,652
;  EARLIER FILING DATE: 1996-10-30
;  EARLIER APPLICATION NUMBER: US 08/386,063
;  EARLIER FILING DATE: 1995-02-07
;  EARLIER APPLICATION NUMBER: US 08/276,358
;  EARLIER FILING DATE: 1994-07-15
;  NUMBER OF SEQ ID NOS: 99
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 39
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: synthetic oligonucleotide
US-09-191-170-39

  Query Match             100.0%;  Score 20;  DB 4;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 1;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGGCGGTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATGGCGGTCCTGATGCT 20
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RESULT 6
US-08-436-714-7
; Sequence 7, Application US/08436714
; Patent No. 5602244
;  GENERAL INFORMATION:
;    APPLICANT:  Marvin H. Caruthers et al
;    TITLE OF INVENTION:  Nucleoside and Polynucleotide
;    TITLE OF INVENTION:  Thiophosphoramidite and Phosphorodithioate Compounds and Proce
;    NUMBER OF SEQUENCES:  8
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Yahwak & Associates
;      STREET:  25 Skytop Drive
;      CITY:  Trumbull
;      STATE:  Connecticut
;      COUNTRY:  USA
;      ZIP:  06611
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  floppy disk
;      COMPUTER:  Macintosh
;      OPERATING SYSTEM:  MS-DOS
;      SOFTWARE:  Microsoft Word 4.0
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/436,714
;      FILING DATE:
;      CLASSIFICATION:  536
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  George M. Yahwak
;      REGISTRATION NUMBER:  26,824
;      REFERENCE/DOCKET NUMBER:  CU 311 BIGCIP
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  (203)268-1951
;      TELEFAX:  (203)268-1951
;  INFORMATION FOR SEQ ID NO:  7:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  20 base pairs
;      TYPE:  nucleic acid
;      STRANDEDNESS:  single
;      TOPOLOGY:  linear
;    MOLECULE TYPE:  DNA
US-08-436-714-7

  Query Match             92.0%;  Score 18.4;  DB 1;  Length 20;
  Best Local Similarity   95.0%;  Pred. No. 5.4;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy       1 TCCATGGCGGTCCTGATGCT 20
           |||||| ||||||||||||||
Db       1 TCCATGTCGGTCCTGATGCT 20


RESULT 7
US-08-442-705-7
; Sequence 7, Application US/08442705
; Patent No. 5684148
;  GENERAL INFORMATION:
;    APPLICANT:  Marvin H. Caruthers et al
;    TITLE OF INVENTION:  Nucleoside and Polynucleotide
;    TITLE OF INVENTION:  Thiophosphoramidite and Phosphorodithioate Compounds and Proce
;    NUMBER OF SEQUENCES:  8
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Yahwak & Associates
;      STREET:  25 Skytop Drive
;      CITY:  Trumbull
;      STATE:  Connecticut
;      COUNTRY:  USA
;      ZIP:  06611
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  floppy disk
;      COMPUTER:  Macintosh
;      OPERATING SYSTEM:  MS-DOS
;      SOFTWARE:  Microsoft Word 4.0
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/442,705
;      FILING DATE:
;      CLASSIFICATION:  536
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  George M. Yahwak
;      REGISTRATION NUMBER:  26,824
;      REFERENCE/DOCKET NUMBER:  CU 311 BIGCIP
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  (203)268-1951
;      TELEFAX:  (203)268-1951
;  INFORMATION FOR SEQ ID NO:  7:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  20 base pairs
;      TYPE:  nucleic acid
;      STRANDEDNESS:  single
;      TOPOLOGY:  linear
;    MOLECULE TYPE:  DNA
US-08-442-705-7

  Query Match             92.0%;  Score 18.4;  DB 1;  Length 20;
  Best Local Similarity   95.0%;  Pred. No. 5.4;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy       1 TCCATGGCGGTCCTGATGCT 20
           |||||| ||||||||||||||
Db       1 TCCATGTCGGTCCTGATGCT 20


RESULT 8
US-08-332-829-7
; Sequence 7, Application US/08332829
; Patent No. 5750666
;  GENERAL INFORMATION:
;    APPLICANT:  Marvin H. Caruthers et al
;    TITLE OF INVENTION:  Nucleoside and Polynucleotide
;    TITLE OF INVENTION:  Thiophosphoramidite and Phosphorodithioate Compounds and Pr
;    NUMBER OF SEQUENCES:  8
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Yahwak & Associates
;      STREET:  25 Skytop Drive
;      CITY:  Trumbull
;      STATE:  Connecticut
;      COUNTRY:  USA
;      ZIP:  06611
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  floppy disk
;      COMPUTER:  Macintosh
;      OPERATING SYSTEM:  MS-DOS
;      SOFTWARE:  Microsoft Word 4.0
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/332,829
;      FILING DATE:
;      CLASSIFICATION:  435
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  George M. Yahwak
;      REGISTRATION NUMBER:  26,824
;      REFERENCE/DOCKET NUMBER:  CU 311 BIGCIP
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  (203)268-1951
;      TELEFAX:  (203)268-1951
;  INFORMATION FOR SEQ ID NO:  7:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  20 base pairs
;      TYPE:  nucleic acid
;      STRANDEDNESS:  single
;      TOPOLOGY:  linear
;    MOLECULE TYPE:  DNA
US-08-332-829-7

  Query Match             92.0%;  Score 18.4;  DB 1;  Length 20;
  Best Local Similarity   95.0%;  Pred. No. 5.4;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;
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Qy      1 TCCATGGCGGTCCTGATGCT 20
          |||||| ||||||||||||||
Db      1 TCCATGTCGGTCCTGATGCT 20


RESULT 9
US-08-386-063-21
; Sequence 21, Application US/08386063
; Patent No. 6008200
;  GENERAL INFORMATION:
;    APPLICANT:  Arthur M. Krieg, M.D.
;    TITLE OF INVENTION:  IMMUNOMODULATORY OLIGONUCLEOTIDES
;    NUMBER OF SEQUENCES:  27
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  LAHIVE & COCKFIELD
;      STREET:  60 STATE STREET, SUITE 510
;      CITY:  BOSTON
;      STATE:  MASSACHUSETTS
;      COUNTRY:  USA
;      ZIP:  02109-1875
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  ASCII text
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/386,063
;      FILING DATE:
;      CLASSIFICATION:  424
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  ARNOLD, BETH E.
;      REGISTRATION NUMBER:  35,430
;      REFERENCE/DOCKET NUMBER:  UIZ-013CP
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  (617)227-7400
;      TELEFAX:  (617)227-5941
;  INFORMATION FOR SEQ ID NO:  21:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  20 base pairs
;      TYPE:  nucleic acid
;      STRANDEDNESS:  single
;      TOPOLOGY:  linear
;    MOLECULE TYPE:  DNA
US-08-386-063-21

  Query Match             92.0%;  Score 18.4;  DB 3;  Length 20;
  Best Local Similarity   95.0%;  Pred. No. 5.4;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy      1 TCCATGGCGGTCCTGATGCT 20
          |||||| ||||||||||||||
Db      1 TCCATGTCGGTCCTGATGCT 20


RESULT 10
US-08-386-063-21
; Sequence 21, Application US/08386063
; Patent No. 6194388
;  GENERAL INFORMATION:
;    APPLICANT:  Arthur M. Krieg, M.D.
;    TITLE OF INVENTION:  IMMUNOMODULATORY OLIGONUCLEOTIDES
;    NUMBER OF SEQUENCES:  27
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  LAHIVE & COCKFIELD
;      STREET:  60 STATE STREET, SUITE 510
;      CITY:  BOSTON
;      STATE:  MASSACHUSETTS
;      COUNTRY:  USA
;      ZIP:  02109-1875
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  ASCII text
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/386,063
;      FILING DATE:
;      CLASSIFICATION:
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  ARNOLD, BETH E.
;      REGISTRATION NUMBER:  35,430
;      REFERENCE/DOCKET NUMBER:  UIZ-013CP
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  (617)227-7400
;      TELEFAX:  (617)227-5941
;  INFORMATION FOR SEQ ID NO:  21:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  20 base pairs
;      TYPE:  nucleic acid
;      STRANDEDNESS:  single
;      TOPOLOGY:  linear
;    MOLECULE TYPE:  DNA
US-08-386-063-21

  Query Match             92.0%;  Score 18.4;  DB 4;  Length 20;
  Best Local Similarity   95.0%;  Pred. No. 5.4;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy      1 TCCATGGCGGTCCTGATGCT 20
          |||||| ||||||||||||||
Db      1 TCCATGTCGGTCCTGATGCT 20


RESULT 11
US-08-738-652-31
; Sequence 31, Application US/08738652B
; Patent No. 6207646
; GENERAL INFORMATION:
;  APPLICANT: Krieg, Arthur M.
;  TITLE OF INVENTION: Immunostimulatory Nucleic Acid Molecules
;  FILE REFERENCE: C1039/7004 HCL
;  CURRENT APPLICATION NUMBER: US/08/738,652B
;  CURRENT FILING DATE: 1996-10-30
;  EARLIER APPLICATION NUMBER: US 08/276,358
;  EARLIER FILING DATE: 1994-07-15
;  EARLIER APPLICATION NUMBER: US 08/386,063
;  EARLIER FILING DATE: 1995-02-07
;  NUMBER OF SEQ ID NOS: 55
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 31
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic oligonucleotide
US-08-738-652-31

  Query Match             92.0%;  Score 18.4;  DB 4;  Length 20;
  Best Local Similarity   95.0%;  Pred. No. 5.4;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy      1 TCCATGGCGGTCCTGATGCT 20
          |||||| ||||||||||||||
Db      1 TCCATGTCGGTCCTGATGCT 20


RESULT 12
US-08-738-652-33
; Sequence 33, Application US/08738652B
; Patent No. 6207646
; GENERAL INFORMATION:
;  APPLICANT: Krieg, Arthur M.
;  TITLE OF INVENTION: Immunostimulatory Nucleic Acid Molecules
;  FILE REFERENCE: C1039/7004 HCL
;  CURRENT APPLICATION NUMBER: US/08/738,652B
;  CURRENT FILING DATE: 1996-10-30
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;  EARLIER APPLICATION NUMBER: US 08/276,358
;  EARLIER FILING DATE: 1994-07-15
;  EARLIER APPLICATION NUMBER: US 08/386,063
;  EARLIER FILING DATE: 1995-02-07
;  NUMBER OF SEQ ID NOS: 55
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 33
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic oligonucleotide
;   FEATURE:
;   NAME/KEY: modified_base
;   LOCATION: (8)...(8)
;   OTHER INFORMATION: m5c
US-08-738-652-33

  Query Match             92.0%;  Score 18.4;  DB 4;  Length 20;
  Best Local Similarity   95.0%;  Pred. No. 5.4;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy      1 TCCATGGCGGTCCTGATGCT 20
          |||||| ||||||||||||
Db      1 TCCATGTCGGTCCTGATGCT 20


RESULT 13
US-08-738-652-34
; Sequence 34, Application US/08738652B
; Patent No. 6207646
; GENERAL INFORMATION:
;  APPLICANT: Krieg, Arthur M.
;  TITLE OF INVENTION: Immunostimulatory Nucleic Acid Molecules
;  FILE REFERENCE: C1039/7004 HCL
;  CURRENT APPLICATION NUMBER: US/08/738,652B
;  CURRENT FILING DATE: 1996-10-30
;  EARLIER APPLICATION NUMBER: US 08/276,358
;  EARLIER FILING DATE: 1994-07-15
;  EARLIER APPLICATION NUMBER: US 08/386,063
;  EARLIER FILING DATE: 1995-02-07
;  NUMBER OF SEQ ID NOS: 55
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 34
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic oligonucleotide
;   FEATURE:
;   NAME/KEY: modified_base
;   LOCATION: (12)...(12)
;   OTHER INFORMATION: m5c
US-08-738-652-34

  Query Match             92.0%;  Score 18.4;  DB 4;  Length 20;
  Best Local Similarity   95.0%;  Pred. No. 5.4;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy      1 TCCATGGCGGTCCTGATGCT 20
          |||||| ||||||||||||
Db      1 TCCATGTCGGTCCTGATGCT 20


RESULT 14
US-08-738-652-37
; Sequence 37, Application US/08738652B
; Patent No. 6207646
; GENERAL INFORMATION:
;  APPLICANT: Krieg, Arthur M.
;  TITLE OF INVENTION: Immunostimulatory Nucleic Acid Molecules
;  FILE REFERENCE: C1039/7004 HCL
;  CURRENT APPLICATION NUMBER: US/08/738,652B
;  CURRENT FILING DATE: 1996-10-30
;  EARLIER APPLICATION NUMBER: US 08/276,358
;  EARLIER FILING DATE: 1994-07-15
;  EARLIER APPLICATION NUMBER: US 08/386,063
;  EARLIER FILING DATE: 1995-02-07
;  NUMBER OF SEQ ID NOS: 55
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 37
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic oligonucleotide
US-08-738-652-37

  Query Match             92.0%;  Score 18.4;  DB 4;  Length 20;
  Best Local Similarity   95.0%;  Pred. No. 5.4;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy      1 TCCATGGCGGTCCTGATGCT 20
          |||||| ||||||||||||
Db      1 TCCATGTCGGTCCTGATGCT 20


RESULT 15
US-08-738-652-38
; Sequence 38, Application US/08738652B
; Patent No. 6207646
; GENERAL INFORMATION:
;  APPLICANT: Krieg, Arthur M.
;  TITLE OF INVENTION: Immunostimulatory Nucleic Acid Molecules
;  FILE REFERENCE: C1039/7004 HCL
;  CURRENT APPLICATION NUMBER: US/08/738,652B
;  CURRENT FILING DATE: 1996-10-30
;  EARLIER APPLICATION NUMBER: US 08/276,358
;  EARLIER FILING DATE: 1994-07-15
;  EARLIER APPLICATION NUMBER: US 08/386,063
;  EARLIER FILING DATE: 1995-02-07
;  NUMBER OF SEQ ID NOS: 55
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 38
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic oligonucleotide
US-08-738-652-38

  Query Match             92.0%;  Score 18.4;  DB 4;  Length 20;
  Best Local Similarity   95.0%;  Pred. No. 5.4;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy      1 TCCATGGCGGTCCTGATGCT 20
          |||||| ||||||||||||
Db      1 TCCATGCCGGTCCTGATGCT 20


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Job time : 41 secs
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GenCore version 5.1.4_p5_4578


OM nucleic - nucleic search, using sw model

Run on: March 1, 2003, 22:56:16 ; Search time 43.5 Seconds
(without alignments)
286.721 Million cell updates/sec

Title: US-09-818-918-39
Perfect score: 20
Sequence: 1 tccatggcggtcctgatgct 20

Scoring table: IDENTITY_NUC
Gapop 10.0 , Gapext 1.0

Searched: 460893 seqs, 311809382 residues

Total number of hits satisfying chosen parameters: 282390

Minimum DB seq length: 0
Maximum DB seq length: 100

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : Published_Applications_NA:*
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2: /cgn2_6/ptodata/2/pubpna/PCT_NEW_PUB.seq:*
3: /cgn2_6/ptodata/2/pubpna/US06_NEW_PUB.seq:*
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5: /cgn2_6/ptodata/2/pubpna/US07_NEW_PUB.seq:*
6: /cgn2_6/ptodata/2/pubpna/PCTUS_PUBCOMB.seq:*
7: /cgn2_6/ptodata/2/pubpna/US08_NEW_PUB.seq:*
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10: /cgn2_6/ptodata/2/pubpna/US09_PUBCOMB.seq:*
11: /cgn2_6/ptodata/2/pubpna/US10_NEW_PUB.seq:*
12: /cgn2_6/ptodata/2/pubpna/US10_PUBCOMB.seq:*
13: /cgn2_6/ptodata/2/pubpna/US60_NEW_PUB.seq:*
14: /cgn2_6/ptodata/2/pubpna/US60_PUBCOMB.seq:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

| Result No. | Score | % Query Match | Length | DB | ID | Description |
|---|---|---|---|---|---|---|
| 1 | 20 | 100.0 | 20 | 9 | US-09-800-266A-37 | Sequence 37, Appl |
| 2 | 20 | 100.0 | 20 | 9 | US-09-895-007A-37 | Sequence 37, Appl |
| 3 | 20 | 100.0 | 20 | 9 | US-10-023-909A-37 | Sequence 37, Appl |
| 4 | 20 | 100.0 | 20 | 9 | US-09-920-313-37 | Sequence 37, Appl |
| 5 | 20 | 100.0 | 20 | 9 | US-09-888-326-595 | Sequence 595, App |
| 6 | 20 | 100.0 | 20 | 10 | US-09-824-468-44 | Sequence 44, Appl |
| 7 | 18.4 | 92.0 | 20 | 9 | US-09-800-266A-17 | Sequence 17, Appl |
| 8 | 18.4 | 92.0 | 20 | 9 | US-09-800-266A-18 | Sequence 18, Appl |
| 9 | 18.4 | 92.0 | 20 | 9 | US-09-800-266A-35 | Sequence 35, Appl |
| 10 | 18.4 | 92.0 | 20 | 9 | US-09-800-266A-36 | Sequence 36, Appl |
| 11 | 18.4 | 92.0 | 20 | 9 | US-09-800-266A-38 | Sequence 38, Appl |
| 12 | 18.4 | 92.0 | 20 | 9 | US-09-800-266A-123 | Sequence 123, App |
| 13 | 18.4 | 92.0 | 20 | 9 | US-09-800-266A-124 | Sequence 124, App |
| 14 | 18.4 | 92.0 | 20 | 9 | US-09-895-007A-17 | Sequence 17, Appl |
| 15 | 18.4 | 92.0 | 20 | 9 | US-09-895-007A-18 | Sequence 18, Appl |
| 16 | 18.4 | 92.0 | 20 | 9 | US-09-895-007A-35 | Sequence 35, Appl |
| 17 | 18.4 | 92.0 | 20 | 9 | US-09-895-007A-36 | Sequence 36, Appl |
| 18 | 18.4 | 92.0 | 20 | 9 | US-09-895-007A-38 | Sequence 38, Appl |
| 19 | 18.4 | 92.0 | 20 | 9 | US-09-895-007A-123 | Sequence 123, App |
| 20 | 18.4 | 92.0 | 20 | 9 | US-09-895-007A-124 | Sequence 124, App |
| 21 | 18.4 | 92.0 | 20 | 9 | US-10-023-909A-17 | Sequence 17, Appl |
| 22 | 18.4 | 92.0 | 20 | 9 | US-10-023-909A-18 | Sequence 18, Appl |
| 23 | 18.4 | 92.0 | 20 | 9 | US-10-023-909A-35 | Sequence 35, Appl |
| 24 | 18.4 | 92.0 | 20 | 9 | US-10-023-909A-36 | Sequence 36, Appl |
| 25 | 18.4 | 92.0 | 20 | 9 | US-10-023-909A-38 | Sequence 38, Appl |
| 26 | 18.4 | 92.0 | 20 | 9 | US-09-920-313-17 | Sequence 17, Appl |
| 27 | 18.4 | 92.0 | 20 | 9 | US-09-920-313-18 | Sequence 18, Appl |
| 28 | 18.4 | 92.0 | 20 | 9 | US-09-920-313-35 | Sequence 35, Appl |
| 29 | 18.4 | 92.0 | 20 | 9 | US-09-920-313-36 | Sequence 36, Appl |
| 30 | 18.4 | 92.0 | 20 | 9 | US-09-920-313-38 | Sequence 38, Appl |
| 31 | 18.4 | 92.0 | 20 | 9 | US-09-920-313-123 | Sequence 123, App |
| 32 | 18.4 | 92.0 | 20 | 9 | US-09-920-313-124 | Sequence 124, App |
| 33 | 18.4 | 92.0 | 20 | 9 | US-09-415-142-21 | Sequence 21, Appl |
| C 34 | 18.4 | 92.0 | 20 | 9 | US-09-888-326-63 | Sequence 63, Appl |
| 35 | 18.4 | 92.0 | 20 | 9 | US-09-888-326-555 | Sequence 555, App |
| 36 | 18.4 | 92.0 | 20 | 9 | US-09-888-326-585 | Sequence 585, App |
| 37 | 18.4 | 92.0 | 20 | 9 | US-09-888-326-603 | Sequence 603, App |
| 38 | 18.4 | 92.0 | 20 | 9 | US-09-888-326-604 | Sequence 604, App |
| 39 | 18.4 | 92.0 | 20 | 10 | US-09-466-320-24 | Sequence 24, Appl |
| 40 | 18.4 | 92.0 | 20 | 10 | US-09-824-468-22 | Sequence 22, Appl |
| 41 | 18.4 | 92.0 | 20 | 10 | US-09-824-468-23 | Sequence 23, Appl |
| 42 | 18.4 | 92.0 | 20 | 10 | US-09-824-468-42 | Sequence 42, Appl |
| 43 | 18.4 | 92.0 | 20 | 10 | US-09-824-468-43 | Sequence 43, Appl |
| 44 | 18.4 | 92.0 | 20 | 10 | US-09-824-468-45 | Sequence 45, Appl |
| 45 | 17.4 | 87.0 | 19 | 9 | US-09-888-326-162 | Sequence 162, App |

ALIGNMENTS

RESULT 1
US-09-800-266A-37
; Sequence 37, Application US/09800266A
; Patent No. US20020156033A1
; GENERAL INFORMATION:
; APPLICANT: Bratzler, Robert L.
; APPLICANT: Petersen, Deanna M.
; TITLE OF INVENTION: Immunostimulatory Nucleic Acids and
; TITLE OF INVENTION: Cancer Medicament Combination Therapy for the Treatment of
; TITLE OF INVENTION: Cancer
; FILE REFERENCE: C1037/7017(HCL/MAT)
; CURRENT APPLICATION NUMBER: US/09/800,266A
; CURRENT FILING DATE: 2001-03-05
; PRIOR APPLICATION NUMBER: US 60/187,214
; PRIOR FILING DATE: 2000-03-03
; NUMBER OF SEQ ID NOS: 146
; SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 37
; LENGTH: 20
; TYPE: DNA
; ORGANISM: Artificial Sequence
; FEATURE:
; OTHER INFORMATION: Synthetic Sequence
US-09-800-266A-37

Query Match 100.0%; Score 20; DB 9; Length 20;
Best Local Similarity 100.0%; Pred. No. 1.7;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

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Qy       1 TCCATGGCGGTCCTGATGCT 20
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Db       1 TCCATGGCGGTCCTGATGCT 20
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RESULT 2
US-09-895-007A-37
; Sequence 37, Application US/09895007A
; Patent No. US20020165178A1
; GENERAL INFORMATION:
; APPLICANT: Schetter, Christian
; APPLICANT: Bratzler, Robert L.
; APPLICANT: Petersen, Deanna M.

; TITLE OF INVENTION: IMMUNOSTIMULATORY NUCLEIC ACIDS FOR THE
; TITLE OF INVENTION: TREATMENT OF ANEMIA, THROMBOCYTOPENIA, AND NEUTROPENIA
; FILE REFERENCE: C1041/7014 (AWS)
; CURRENT APPLICATION NUMBER: US/09/895,007A
; CURRENT FILING DATE: 2001-06-28
; PRIOR APPLICATION NUMBER: US 60/214,368
; PRIOR FILING DATE: 2000-06-28
; NUMBER OF SEQ ID NOS: 133
; SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 37
; LENGTH: 20
; TYPE: DNA
; ORGANISM: Artificial Sequence
; FEATURE:
; OTHER INFORMATION: Synthetic oligonucleotide
US-09-895-007A-37

Query Match 100.0%; Score 20; DB 9; Length 20;
Best Local Similarity 100.0%; Pred. No. 1.7;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 TCCATGGCGGTCCTGATGCT 20
||||||||||||||||||||
Db 1 TCCATGGCGGTCCTGATGCT 20

RESULT 3
US-10-023-909A-37
; Sequence 37, Application US/10023909A
; Patent No. US20020164341A1
; GENERAL INFORMATION:
; APPLICANT: Davis, Heather L.
; APPLICANT: Schorr, Joachim
; APPLICANT: Krieg, Arthur M.
; TITLE OF INVENTION: Use of Nucleic Acids Containing
; TITLE OF INVENTION: Unmethylated CpG Dinucleotide as an Adjuvant
; FILE REFERENCE: C1039/7058/HCL
; CURRENT APPLICATION NUMBER: US/10/023,909A
; CURRENT FILING DATE: 2001-12-18
; PRIOR APPLICATION NUMBER: US 09/325,193
; PRIOR FILING DATE: 1999-06-03
; PRIOR APPLICATION NUMBER: US 09/154,614
; PRIOR FILING DATE: 1998-09-16
; PRIOR APPLICATION NUMBER: PCT/US98/04703
; PRIOR FILING DATE: 1998-03-10
; PRIOR APPLICATION NUMBER: US 60/040,376
; PRIOR FILING DATE: 1997-03-10
; NUMBER OF SEQ ID NOS: 98
; SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 37
; LENGTH: 20
; TYPE: DNA
; ORGANISM: Artificial Sequence
; FEATURE:
; OTHER INFORMATION: Synthetic Oligonucleotide
US-10-023-909A-37

Query Match 100.0%; Score 20; DB 9; Length 20;
Best Local Similarity 100.0%; Pred. No. 1.7;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 TCCATGGCGGTCCTGATGCT 20
||||||||||||||||||||
Db 1 TCCATGGCGGTCCTGATGCT 20

RESULT 4
US-09-920-313-37
; Sequence 37, Application US/09920313
; Publication No. US20020198165A1
; GENERAL INFORMATION:
; APPLICANT: Bratzler, Robert L.
; APPLICANT: Petersen, Deanna M.
; TITLE OF INVENTION: Nucleic Acids for the Prevention and
; TITLE OF INVENTION: Treatment of Gastric Ulcers
; FILE REFERENCE: C1037/7019 (HCL/MAT)
; CURRENT APPLICATION NUMBER: US/09/920,313
; CURRENT FILING DATE: 2001-08-01
; PRIOR APPLICATION NUMBER: US 60/222,248
; PRIOR FILING DATE: 2001-08-08
; NUMBER OF SEQ ID NOS: 148
; SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 37
; LENGTH: 20
; TYPE: DNA
; ORGANISM: Artificial Sequence
; FEATURE:
; OTHER INFORMATION: Synthetic Sequence
US-09-920-313-37

Query Match 100.0%; Score 20; DB 9; Length 20;
Best Local Similarity 100.0%; Pred. No. 1.7;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 TCCATGGCGGTCCTGATGCT 20
||||||||||||||||||||
Db 1 TCCATGGCGGTCCTGATGCT 20

RESULT 5
US-09-888-326-595
; Sequence 595, Application US/09888326
; Publication No. US20030026801A1
; GENERAL INFORMATION:
; APPLICANT: Weiner, George
; APPLICANT: Hartmann, Gunther
; TITLE OF INVENTION: Methods for Enhancing Antibody-Induced
; TITLE OF INVENTION: Cell Lysis and Treating Cancer
; FILE REFERENCE: C1039/7052 (AWS)
; CURRENT APPLICATION NUMBER: US/09/888,326
; CURRENT FILING DATE: 2001-06-22
; PRIOR APPLICATION NUMBER: US 60/213,346
; PRIOR FILING DATE: 2000-06-22
; NUMBER OF SEQ ID NOS: 848
; SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 595
; LENGTH: 20
; TYPE: DNA
; ORGANISM: Artificial Sequence
; FEATURE:
; OTHER INFORMATION: Synthetic oligonucleotide
; NAME/KEY: misc_feature
; LOCATION: (0)...(0)
; OTHER INFORMATION: phosphodiester backbone
US-09-888-326-595

Query Match 100.0%; Score 20; DB 9; Length 20;
Best Local Similarity 100.0%; Pred. No. 1.7;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 TCCATGGCGGTCCTGATGCT 20
||||||||||||||||||||
Db 1 TCCATGGCGGTCCTGATGCT 20

RESULT 6
US-09-824-468-44
; Sequence 44, Application US/09824468
; Patent No. US20020064515A1
; GENERAL INFORMATION:
; APPLICANT: Krieg, Arthur M.
; APPLICANT: Weiner, George
; TITLE OF INVENTION: Methods and Products for Stimulating the
; TITLE OF INVENTION: Immune System Using Immunotherapeutic Oligonucleotides and
; TITLE OF INVENTION: Cytokines
; FILE REFERENCE: C1039/7026/HCL

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;  CURRENT APPLICATION NUMBER: US/09/824,468
;  CURRENT FILING DATE:  2001-04-02
;  PRIOR APPLICATION NUMBER: 09/286,098
;  PRIOR FILING DATE: 1999-04-02
;  NUMBER OF SEQ ID NOS: 105
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 44
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic Sequence
US-09-824-468-44

  Query Match             100.0%;  Score 20;  DB 10;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 1.7;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGGCGGTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATGGCGGTCCTGATGCT 20


RESULT 7
US-09-800-266A-17
; Sequence 17, Application US/09800266A
; Patent No. US20020156033A1
; GENERAL INFORMATION:
;  APPLICANT: Bratzler, Robert L.
;  APPLICANT:  Petersen, Deanna M.
;  TITLE OF INVENTION: Immunostimulatory Nucleic Acids and
;  TITLE OF INVENTION:  Cancer Medicament Combination Therapy for the Treatment of
;  TITLE OF INVENTION:  Cancer
;  FILE REFERENCE: C1037/7017(HCL/MAT)
;  CURRENT APPLICATION NUMBER: US/09/800,266A
;  CURRENT FILING DATE:  2001-03-05
;  PRIOR APPLICATION NUMBER: US 60/187,214
;  PRIOR FILING DATE: 2000-03-03
;  NUMBER OF SEQ ID NOS: 146
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 17
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic Sequence
US-09-800-266A-17

  Query Match             92.0%;  Score 18.4;  DB 9;  Length 20;
  Best Local Similarity   95.0%;  Pred. No. 9.1;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy      1 TCCATGGCGGTCCTGATGCT 20
          ||||||  ||||||||||||||
Db      1 TCCATGTCGGTCCTGATGCT 20


RESULT 8
US-09-800-266A-18
; Sequence 18, Application US/09800266A
; Patent No. US20020156033A1
; GENERAL INFORMATION:
;  APPLICANT: Bratzler, Robert L.
;  APPLICANT:  Petersen, Deanna M.
;  TITLE OF INVENTION: Immunostimulatory Nucleic Acids and
;  TITLE OF INVENTION:  Cancer Medicament Combination Therapy for the Treatment of
;  TITLE OF INVENTION:  Cancer
;  FILE REFERENCE: C1037/7017(HCL/MAT)
;  CURRENT APPLICATION NUMBER: US/09/800,266A
;  CURRENT FILING DATE:  2001-03-05
;  PRIOR APPLICATION NUMBER: US 60/187,214
;  PRIOR FILING DATE: 2000-03-03
;  NUMBER OF SEQ ID NOS: 146
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 18
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic Sequence
US-09-800-266A-18

  Query Match             92.0%;  Score 18.4;  DB 9;  Length 20;
  Best Local Similarity   95.0%;  Pred. No. 9.1;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy      1 TCCATGGCGGTCCTGATGCT 20
          ||||||  ||||||||||||||
Db      1 TCCATGTCGGTCCTGATGCT 20


RESULT 9
US-09-800-266A-35
; Sequence 35, Application US/09800266A
; Patent No. US20020156033A1
; GENERAL INFORMATION:
;  APPLICANT: Bratzler, Robert L.
;  APPLICANT:  Petersen, Deanna M.
;  TITLE OF INVENTION: Immunostimulatory Nucleic Acids and
;  TITLE OF INVENTION:  Cancer Medicament Combination Therapy for the Treatment of
;  TITLE OF INVENTION:  Cancer
;  FILE REFERENCE: C1037/7017(HCL/MAT)
;  CURRENT APPLICATION NUMBER: US/09/800,266A
;  CURRENT FILING DATE:  2001-03-05
;  PRIOR APPLICATION NUMBER: US 60/187,214
;  PRIOR FILING DATE: 2000-03-03
;  NUMBER OF SEQ ID NOS: 146
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 35
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic Sequence
US-09-800-266A-35

  Query Match             92.0%;  Score 18.4;  DB 9;  Length 20;
  Best Local Similarity   95.0%;  Pred. No. 9.1;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy      1 TCCATGGCGGTCCTGATGCT 20
          ||||||  ||||||||||||||
Db      1 TCCATGTCGGTCCTGATGCT 20


RESULT 10
US-09-800-266A-36
; Sequence 36, Application US/09800266A
; Patent No. US20020156033A1
; GENERAL INFORMATION:
;  APPLICANT: Bratzler, Robert L.
;  APPLICANT:  Petersen, Deanna M.
;  TITLE OF INVENTION: Immunostimulatory Nucleic Acids and
;  TITLE OF INVENTION:  Cancer Medicament Combination Therapy for the Treatment of
;  TITLE OF INVENTION:  Cancer
;  FILE REFERENCE: C1037/7017(HCL/MAT)
;  CURRENT APPLICATION NUMBER: US/09/800,266A
;  CURRENT FILING DATE:  2001-03-05
;  PRIOR APPLICATION NUMBER: US 60/187,214
;  PRIOR FILING DATE: 2000-03-03
;  NUMBER OF SEQ ID NOS: 146
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 36
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
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;   FEATURE:
;   OTHER INFORMATION: Synthetic Sequence
US-09-800-266A-36

  Query Match             92.0%;  Score 18.4;  DB 9;  Length 20;
  Best Local Similarity   95.0%;  Pred. No. 9.1;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy      1 TCCATGGCGGTCCTGATGCT 20
          |||||| ||||||||||||
Db      1 TCCATGCCGGTCCTGATGCT 20


RESULT 11
US-09-800-266A-38
; Sequence 38, Application US/09800266A
; Patent No. US20020156033A1
; GENERAL INFORMATION:
;  APPLICANT: Bratzler, Robert L.
;  APPLICANT:  Petersen, Deanna M.
;  TITLE OF INVENTION: Immunostimulatory Nucleic Acids and
;  TITLE OF INVENTION:  Cancer Medicament Combination Therapy for the Treatment of
;  TITLE OF INVENTION:  Cancer
;  FILE REFERENCE: C1037/7017(HCL/MAT)
;  CURRENT APPLICATION NUMBER: US/09/800,266A
;  CURRENT FILING DATE:  2001-03-05
;  PRIOR APPLICATION NUMBER: US 60/187,214
;  PRIOR FILING DATE: 2000-03-03
;  NUMBER OF SEQ ID NOS: 146
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 38
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic Sequence
US-09-800-266A-38

  Query Match             92.0%;  Score 18.4;  DB 9;  Length 20;
  Best Local Similarity   95.0%;  Pred. No. 9.1;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy      1 TCCATGGCGGTCCTGATGCT 20
          |||||| ||||||||||||
Db      1 TCCATGACGGTCCTGATGCT 20


RESULT 12
US-09-800-266A-123
; Sequence 123, Application US/09800266A
; Patent No. US20020156033A1
; GENERAL INFORMATION:
;  APPLICANT: Bratzler, Robert L.
;  APPLICANT:  Petersen, Deanna M.
;  TITLE OF INVENTION: Immunostimulatory Nucleic Acids and
;  TITLE OF INVENTION:  Cancer Medicament Combination Therapy for the Treatment of
;  TITLE OF INVENTION:  Cancer
;  FILE REFERENCE: C1037/7017(HCL/MAT)
;  CURRENT APPLICATION NUMBER: US/09/800,266A
;  CURRENT FILING DATE:  2001-03-05
;  PRIOR APPLICATION NUMBER: US 60/187,214
;  PRIOR FILING DATE: 2000-03-03
;  NUMBER OF SEQ ID NOS: 146
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 123
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic Sequence
US-09-800-266A-123

  Query Match             92.0%;  Score 18.4;  DB 9;  Length 20;
  Best Local Similarity   95.0%;  Pred. No. 9.1;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy      1 TCCATGGCGGTCCTGATGCT 20
          ||||||| ||||||||||||
Db      1 TCCATGGGGGTCCTGATGCT 20


RESULT 13
US-09-800-266A-124
; Sequence 124, Application US/09800266A
; Patent No. US20020156033A1
; GENERAL INFORMATION:
;  APPLICANT: Bratzler, Robert L.
;  APPLICANT:  Petersen, Deanna M.
;  TITLE OF INVENTION: Immunostimulatory Nucleic Acids and
;  TITLE OF INVENTION:  Cancer Medicament Combination Therapy for the Treatment of
;  TITLE OF INVENTION:  Cancer
;  FILE REFERENCE: C1037/7017(HCL/MAT)
;  CURRENT APPLICATION NUMBER: US/09/800,266A
;  CURRENT FILING DATE:  2001-03-05
;  PRIOR APPLICATION NUMBER: US 60/187,214
;  PRIOR FILING DATE: 2000-03-03
;  NUMBER OF SEQ ID NOS: 146
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 124
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic Sequence
US-09-800-266A-124

  Query Match             92.0%;  Score 18.4;  DB 9;  Length 20;
  Best Local Similarity   95.0%;  Pred. No. 9.1;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy      1 TCCATGGCGGTCCTGATGCT 20
          ||||||| ||||||||||||
Db      1 TCCATGGGGGTCCTGATGCT 20


RESULT 14
US-09-895-007A-17
; Sequence 17, Application US/09895007A
; Patent No. US20020165178A1
; GENERAL INFORMATION:
;  APPLICANT: Schetter, Christian
;  APPLICANT:  Bratzler, Robert L.
;  APPLICANT:  Petersen, Deanna M.
;  TITLE OF INVENTION: IMMUNOSTIMULATORY NUCLEIC ACIDS FOR THE
;  TITLE OF INVENTION:  TREATMENT OF ANEMIA, THROMBOCYTOPENIA, AND NEUTROPENIA
;  FILE REFERENCE: C1041/7014 (AWS)
;  CURRENT APPLICATION NUMBER: US/09/895,007A
;  CURRENT FILING DATE:  2001-06-28
;  PRIOR APPLICATION NUMBER: US 60/214,368
;  PRIOR FILING DATE: 2000-06-28
;  NUMBER OF SEQ ID NOS: 133
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 17
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic oligonucleotide
US-09-895-007A-17

  Query Match             92.0%;  Score 18.4;  DB 9;  Length 20;
  Best Local Similarity   95.0%;  Pred. No. 9.1;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy      1 TCCATGGCGGTCCTGATGCT 20
          |||||| ||||||||||||
```

```
Db      1 TCCATGTCGGTCCTGATGCT 20


RESULT 15
US-09-895-007A-18
; Sequence 18, Application US/09895007A
; Patent No. US20020165178A1
; GENERAL INFORMATION:
;  APPLICANT: Schetter, Christian
;  APPLICANT:  Bratzler, Robert L.
;  APPLICANT:  Petersen, Deanna M.
;  TITLE OF INVENTION: IMMUNOSTIMULATORY NUCLEIC ACIDS FOR THE
;  TITLE OF INVENTION:  TREATMENT OF ANEMIA, THROMBOCYTOPENIA, AND NEUTROPENIA
;  FILE REFERENCE: C1041/7014 (AWS)
;  CURRENT APPLICATION NUMBER: US/09/895,007A
;  CURRENT FILING DATE:  2001-06-28
;  PRIOR APPLICATION NUMBER: US 60/214,368
;  PRIOR FILING DATE: 2000-06-28
;  NUMBER OF SEQ ID NOS: 133
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 18
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic oligonucleotide
US-09-895-007A-18

  Query Match             92.0%;  Score 18.4;  DB 9;  Length 20;
  Best Local Similarity   95.0%;  Pred. No. 9.1;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy      1 TCCATGGCGGTCCTGATGCT 20
          |||||| ||||||||||||
Db      1 TCCATGTCGGTCCTGATGCT 20


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GenCore version 5.1.4_p5_4578


OM nucleic - nucleic search, using sw model

Run on: March 1, 2003, 20:23:56 ; Search time 363.75 Seconds
(without alignments)
1600.154 Million cell updates/sec

Title: US-09-818-918-43
Perfect score: 20
Sequence: 1 tccatgtcgttcctgatgct 20

Scoring table: IDENTITY_NUC
Gapop 10.0 , Gapext 1.0

Searched: 2054640 seqs, 14551402878 residues

Total number of hits satisfying chosen parameters: 4109280

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : GenEmbl:*
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2: gb_htg:*
3: gb_in:*
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13: gb_un:*
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26: em_ro:*
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28: em_un:*
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30: em_htg_hum:*
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32: em_htg_other:*
33: em_htg_mus:*
34: em_htg_pln:*
35: em_htg_rod:*
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37: em_htg_vrt:*
38: em_sy:*
39: em_htgo_hum:*
40: em_htgo_mus:*
41: em_htgo_other:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

| Result No. | | Score | % Query Match | Length | DB | ID | Description |
|---|---|---|---|---|---|---|---|
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| 2 | | 20 | 100.0 | 20 | 6 | AR140494 | AR140494 Sequence |
| 3 | | 20 | 100.0 | 20 | 6 | AR146336 | AR146336 Sequence |
| 4 | | 20 | 100.0 | 20 | 6 | AR146344 | AR146344 Sequence |
| 5 | | 20 | 100.0 | 20 | 6 | AR146345 | AR146345 Sequence |
| 6 | | 20 | 100.0 | 20 | 6 | AR154709 | AR154709 Sequence |
| 7 | | 20 | 100.0 | 20 | 6 | AR182899 | AR182899 Sequence |
| 8 | | 20 | 100.0 | 20 | 6 | AX045773 | AX045773 Sequence |
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| 13 | | 20 | 100.0 | 20 | 6 | AX351747 | AX351747 Sequence |
| 14 | | 20 | 100.0 | 20 | 6 | AX351813 | AX351813 Sequence |
| 15 | | 20 | 100.0 | 20 | 6 | AX351836 | AX351836 Sequence |
| 16 | | 20 | 100.0 | 20 | 6 | AX351864 | AX351864 Sequence |
| 17 | | 20 | 100.0 | 20 | 6 | AX351885 | AX351885 Sequence |
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| 19 | | 20 | 100.0 | 20 | 6 | AX352126 | AX352126 Sequence |
| 20 | | 20 | 100.0 | 20 | 6 | AX352145 | AX352145 Sequence |
| 21 | c | 20 | 100.0 | 20 | 6 | AX355034 | AX355034 Sequence |
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| 26 | | 20 | 100.0 | 20 | 6 | BD009091 | BD009091 Immunosti |
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| 40 | | 20 | 100.0 | 33 | 6 | AX352184 | AX352184 Sequence |
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ALIGNMENTS

RESULT 1
AR140484
LOCUS AR140484 20 bp DNA linear PAT 16-JUN-2001
DEFINITION Sequence 43 from patent US 6207646.
ACCESSION AR140484
VERSION AR140484.1 GI:14482980
KEYWORDS .
SOURCE Unknown.
ORGANISM Unknown.
Unclassified.
REFERENCE 1 (bases 1 to 20)
AUTHORS Krieg,A.M., Kline,J., Klinman,D. and Steinberg,A.D.
TITLE Immunostimulatory nucleic acid molecules
JOURNAL Patent: US 6207646-A 43 27-MAR-2001;
FEATURES Location/Qualifiers

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Db      1 TCCATGTCGTTCCTGATGCT 20


RESULT 2
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DEFINITION  Sequence 53 from patent US 6207646.
ACCESSION   AR140494
VERSION     AR140494.1  GI:14482990
KEYWORDS    .
SOURCE      Unknown.
  ORGANISM  Unknown.
            Unclassified.
REFERENCE   1  (bases 1 to 20)
  AUTHORS   Krieg,A.M., Kline,J., Klinman,D. and Steinberg,A.D.
  TITLE     Immunostimulatory nucleic acid molecules
  JOURNAL   Patent: US 6207646-A 53 27-MAR-2001;
FEATURES             Location/Qualifiers
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BASE COUNT        2 a      6 c      4 g      8 t
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RESULT 3
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LOCUS       AR146336                 20 bp    DNA     linear   PAT 08-AUG-2001
DEFINITION  Sequence 48 from patent US 6218371.
ACCESSION   AR146336
VERSION     AR146336.1  GI:15109525
KEYWORDS    .
SOURCE      Unknown.
  ORGANISM  Unknown.
            Unclassified.
REFERENCE   1  (bases 1 to 20)
  AUTHORS   Krieg,A.M. and Weiner,G.
  TITLE     Methods and products for stimulating the immune system using
            immunotherapeutic oligonucleotides and cytokines
  JOURNAL   Patent: US 6218371-A 48 17-APR-2001;
FEATURES             Location/Qualifiers
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                     /organism="unknown"
BASE COUNT        2 a      6 c      4 g      8 t
ORIGIN

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Db      1 TCCATGTCGTTCCTGATGCT 20


RESULT 4
AR146344
LOCUS       AR146344                 20 bp    DNA     linear   PAT 08-AUG-2001
DEFINITION  Sequence 56 from patent US 6218371.
ACCESSION   AR146344
VERSION     AR146344.1  GI:15109533
KEYWORDS    .
SOURCE      Unknown.
  ORGANISM  Unknown.
            Unclassified.
REFERENCE   1  (bases 1 to 20)
  AUTHORS   Krieg,A.M. and Weiner,G.
  TITLE     Methods and products for stimulating the immune system using
            immunotherapeutic oligonucleotides and cytokines
  JOURNAL   Patent: US 6218371-A 56 17-APR-2001;
FEATURES             Location/Qualifiers
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BASE COUNT        2 a      6 c      4 g      8 t
ORIGIN

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AR146345
LOCUS       AR146345                 20 bp    DNA     linear   PAT 08-AUG-2001
DEFINITION  Sequence 57 from patent US 6218371.
ACCESSION   AR146345
VERSION     AR146345.1  GI:15109534
KEYWORDS    .
SOURCE      Unknown.
  ORGANISM  Unknown.
            Unclassified.
REFERENCE   1  (bases 1 to 20)
  AUTHORS   Krieg,A.M. and Weiner,G.
  TITLE     Methods and products for stimulating the immune system using
            immunotherapeutic oligonucleotides and cytokines
  JOURNAL   Patent: US 6218371-A 57 17-APR-2001;
FEATURES             Location/Qualifiers
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ORIGIN

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LOCUS       AR154709                 20 bp    DNA     linear   PAT 08-AUG-2001
DEFINITION  Sequence 38 from patent US 6239116.
ACCESSION   AR154709
VERSION     AR154709.1  GI:15122762
KEYWORDS    .
SOURCE      Unknown.
  ORGANISM  Unknown.
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REFERENCE   1  (bases 1 to 20)
  AUTHORS   Krieg,A.M. and Kline,J.N.
  TITLE     Immunostimulatory nucleic acid molecules
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  JOURNAL   Patent: US 6239116-A 38 29-MAY-2001;
FEATURES             Location/Qualifiers
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RESULT 7
AR182899
LOCUS       AR182899                 20 bp    DNA     linear   PAT 20-APR-2002
DEFINITION  Sequence 71 from patent US 6339068.
ACCESSION   AR182899
VERSION     AR182899.1  GI:20226106
KEYWORDS    .
SOURCE      Unknown.
  ORGANISM  Unknown.
            Unclassified.
REFERENCE   1  (bases 1 to 20)
  AUTHORS   Krieg,A.M., Davis,H.L., Wu,T. and Schorr,J.
  TITLE     Vectors and methods for immunization or therapeutic protocols
  JOURNAL   Patent: US 6339068-A 71 15-JAN-2002;
FEATURES             Location/Qualifiers
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Db      1 TCCATGTCGTTCCTGATGCT 20


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LOCUS       AX045773                 20 bp    DNA     linear   PAT 24-NOV-2000
DEFINITION  Sequence 3 from Patent WO0067023.
ACCESSION   AX045773
VERSION     AX045773.1  GI:11344140
KEYWORDS    .
SOURCE      synthetic construct.
  ORGANISM  synthetic construct
            artificial sequences.
REFERENCE   1  (bases 1 to 20)
  AUTHORS   Noll,B.O., Schetter,C. and Krieg,A.M.
  TITLE     Screening for immunostimulatory dna functional modifyers
  JOURNAL   Patent: WO 0067023-A 3 09-NOV-2000;
            CPG Immunopharmaceuticals GmbH (DE) ; UNIVERSITY OF IOWA RESEARCH
            FOUNDATION (US)
FEATURES             Location/Qualifiers
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Db      1 TCCATGTCGTTCCTGATGCT 20


RESULT 9
AX045774
LOCUS       AX045774                 20 bp    DNA     linear   PAT 24-NOV-2000
DEFINITION  Sequence 4 from Patent WO0067023.
ACCESSION   AX045774
VERSION     AX045774.1  GI:11344141
KEYWORDS    .
SOURCE      synthetic construct.
  ORGANISM  synthetic construct
            artificial sequences.
REFERENCE   1  (bases 1 to 20)
  AUTHORS   Noll,B.O., Schetter,C. and Krieg,A.M.
  TITLE     Screening for immunostimulatory dna functional modifyers
  JOURNAL   Patent: WO 0067023-A 4 09-NOV-2000;
            CPG Immunopharmaceuticals GmbH (DE) ; UNIVERSITY OF IOWA RESEARCH
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FEATURES             Location/Qualifiers
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ORIGIN

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LOCUS       AX103944                 20 bp    DNA     linear   PAT 30-APR-2001
DEFINITION  Sequence 136 from Patent WO0122972.
ACCESSION   AX103944
VERSION     AX103944.1  GI:13920141
KEYWORDS    .
SOURCE      synthetic construct.
  ORGANISM  synthetic construct
            artificial sequences.
REFERENCE   1  (bases 1 to 20)
  AUTHORS   Krieg,A.M., Schetter,C. and Vollmer,J.C.
  TITLE     Immunostimulatory nucleic acids
  JOURNAL   Patent: WO 0122972-A 136 05-APR-2001;
            UNIVERSITY OF IOWA RESEARCH FOUNDATION (US) ; Coley Pharmaceutical
            GmbH (DE)
FEATURES             Location/Qualifiers
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RESULT 11
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AX104567
LOCUS       AX104567                 20 bp    DNA     linear   PAT 30-APR-2001
DEFINITION  Sequence 759 from Patent WO0122972.
ACCESSION   AX104567
VERSION     AX104567.1  GI:13920764
KEYWORDS    .
SOURCE      synthetic construct.
  ORGANISM  synthetic construct
            artificial sequences.
REFERENCE   1  (bases 1 to 20)
  AUTHORS   Krieg,A.M., Schetter,C. and Vollmer,J.C.
  TITLE     Immunostimulatory nucleic acids
  JOURNAL   Patent: WO 0122972-A 759 05-APR-2001;
            UNIVERSITY OF IOWA RESEARCH FOUNDATION (US) ; Coley Pharmaceutical
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FEATURES             Location/Qualifiers
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RESULT 12
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LOCUS       AX135637                 20 bp    DNA     linear   PAT 29-MAY-2001
DEFINITION  Sequence 8 from Patent WO0132877.
ACCESSION   AX135637
VERSION     AX135637.1  GI:14271907
KEYWORDS    .
SOURCE      synthetic construct.
  ORGANISM  synthetic construct
            artificial sequences.
REFERENCE   1  (bases 1 to 20)
  AUTHORS   Mackichan,M.L.
  TITLE     Cpg receptor (cpg-r) and methods relating thereto
  JOURNAL   Patent: WO 0132877-A 8 10-MAY-2001;
            CHIRON CORPORATION (US)
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RESULT 13
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LOCUS       AX351747                 20 bp    DNA     linear   PAT 06-FEB-2002
DEFINITION  Sequence 43 from Patent WO0193902.
ACCESSION   AX351747
VERSION     AX351747.1  GI:18617030
KEYWORDS    .
SOURCE      synthetic construct.
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            artificial sequences.
REFERENCE   1
  AUTHORS   Mond,J.J., Flora,M. and Klinman,D.M.
  TITLE     Immunostimulatory rna/dna hybrid molecules
  JOURNAL   Patent: WO 0193902-A 43 13-DEC-2001;
            Biosynexus Incorporated (US)
FEATURES             Location/Qualifiers
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RESULT 14
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DEFINITION  Sequence 109 from Patent WO0193902.
ACCESSION   AX351813
VERSION     AX351813.1  GI:18617096
KEYWORDS    .
SOURCE      synthetic construct.
  ORGANISM  synthetic construct
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REFERENCE   1
  AUTHORS   Mond,J.J., Flora,M. and Klinman,D.M.
  TITLE     Immunostimulatory rna/dna hybrid molecules
  JOURNAL   Patent: WO 0193902-A 109 13-DEC-2001;
            Biosynexus Incorporated (US)
FEATURES             Location/Qualifiers
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Db      1 TCCATGTCGTTCCTGATGCT 20


RESULT 15
AX351836
LOCUS       AX351836                 20 bp    DNA     linear   PAT 06-FEB-2002
DEFINITION  Sequence 132 from Patent WO0193902.
ACCESSION   AX351836
VERSION     AX351836.1  GI:18617119
KEYWORDS    .
SOURCE      synthetic construct.
  ORGANISM  synthetic construct
            artificial sequences.
REFERENCE   1
  AUTHORS   Mond,J.J., Flora,M. and Klinman,D.M.
  TITLE     Immunostimulatory rna/dna hybrid molecules
  JOURNAL   Patent: WO 0193902-A 132 13-DEC-2001;
            Biosynexus Incorporated (US)
FEATURES             Location/Qualifiers
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SUMMARIES

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| 6 | 20 | 100.0 | 20 | 20 | AAZ41903 | IL-12 secretion in |
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| 20 | 20 | 100.0 | 20 | 22 | AAC87224 | Immunostimulatory |
| 21 | 20 | 100.0 | 20 | 22 | AAC87225 | Methylated CpG oli |
| 22 | 20 | 100.0 | 20 | 22 | AAA92364 | CG motif and CFA c |
| 23 | 20 | 100.0 | 20 | 22 | AAH19293 | CpG Oligonucleotid |
| 24 | 20 | 100.0 | 20 | 22 | AAH19303 | Non CpG oligonucle |
| 25 | 20 | 100.0 | 20 | 24 | AAL39221 | Murine Toll-like r |
| 26 | 20 | 100.0 | 20 | 24 | ABK46426 | Immunostimulatory |
| 27 | 20 | 100.0 | 20 | 24 | ABL35135 | Immunostimulatory |
| 28 | 20 | 100.0 | 20 | 24 | ABL35199 | Immunostimulatory |
| 29 | 20 | 100.0 | 20 | 24 | ABL35220 | Immunostimulatory |
| 30 | 20 | 100.0 | 20 | 24 | ABL35246 | Immunostimulatory |
| 31 | 20 | 100.0 | 20 | 24 | ABL35265 | Immunostimulatory |
| 32 | 20 | 100.0 | 20 | 24 | ABL35288 | Immunostimulatory |
| 33 | 20 | 100.0 | 20 | 24 | ABL35498 | Immunostimulatory |
| 34 | 20 | 100.0 | 20 | 24 | ABL35515 | Immunostimulatory |
| c 35 | 20 | 100.0 | 20 | 24 | ABL38700 | Immunostimulatory |
| 36 | 20 | 100.0 | 20 | 24 | ABL39189 | Immunostimulatory |
| 37 | 20 | 100.0 | 21 | 24 | ABL35387 | Immunostimulatory |
| 38 | 20 | 100.0 | 21 | 24 | ABL35404 | Immunostimulatory |
| 39 | 20 | 100.0 | 22 | 24 | ABL35423 | Immunostimulatory |
| 40 | 20 | 100.0 | 24 | 24 | ABL35309 | Immunostimulatory |
| 41 | 20 | 100.0 | 26 | 24 | ABL35142 | Immunostimulatory |
| 42 | 20 | 100.0 | 28 | 22 | AAF99188 | Immunostimulatory |
| 43 | 20 | 100.0 | 28 | 24 | ABL35163 | Immunostimulatory |
| 44 | 20 | 100.0 | 28 | 24 | ABL35182 | Immunostimulatory |
| 45 | 20 | 100.0 | 28 | 24 | ABL35330 | Immunostimulatory |

ALIGNMENTS

RESULT 1
AAV60952
ID AAV60952 standard; DNA; 20 BP.
XX
AC AAV60952;
XX
DT 14-DEC-1998 (first entry)
XX
DE Unmethylated cytosine-guanine dinucleotide containing oligonucleotide 3.
XX
KW ss; unmethylated CpG dinucleotide; immune response; natural killer cell;
KW Th2 response; Th1 response; Th1 cytokine; hepatitis B.
XX
OS Synthetic.
XX
PN WO9840100-A1.
XX
PD 17-SEP-1998.
XX
PF 10-MAR-1998; 98WO-US04703.
XX
PR 10-MAR-1997; 97US-0040376.
XX
PA (OTTA-) OTTAWA CIVIC LOEB RES INST.
PA (QIAG-) QIAGEN GMBH.
PA (IOWA ) UNIV IOWA RES FOUND.
XX
PI Davis HL, Krieg AM, Schorr J;
XX
DR WPI; 1998-520792/44.
XX
PT Use of oligonucleotides containing an unmethylated CpG dinucleotide

PT - useful as, e.g. adjuvant with antigen, or nucleic acid encoding
PT antigen for inducing immune response in subject
XX
PS Disclosure; Page 12; 67pp; English.
XX
CC Oligonucleotides containing at least 1 unmethylated CpG dinucleotide
CC affect the immune response in a subject by activating natural killer
CC cells or redirecting a subject's immune response from a Th2 to a Th1
CC response by inducing monocytic and other cells to produce Th1 cytokines.
CC These nucleic acids containing at least 1 unmethylated CpG can be used as
CC an adjuvant, specifically to induce an immune response against an
CC antigenic protein, and are used particularly for virally mediated
CC disorders, e.g. hepatitis B virus infection.
XX
SQ Sequence 20 BP; 2 A; 6 C; 4 G; 8 T; 0 other;

Query Match 100.0%; Score 20; DB 19; Length 20;
Best Local Similarity 100.0%; Pred. No. 3;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 TCCATGTCGTTCCTGATGCT 20
||||||||||||||||||||
Db 1 TCCATGTCGTTCCTGATGCT 20

RESULT 2
AAV47688
ID AAV47688 standard; DNA; 20 BP.
XX
AC AAV47688;
XX
DT 20-NOV-1998 (first entry)
XX
DE Unmethylated CpG dinucleotide.
XX
KW Unmethylated CpG dinucleotide; immune response; bacterial meningitis;
KW natural killer cell activation; NK cell; Th2 response; neonatal sepsis;
KW pulmonary disorder; asthma; environmentally induced airway disease;
KW bacterial infection; endotoxaemia; therapy; cystic fibrosis;
KW inflammatory bowel disease; ss.
XX
OS Synthetic.
XX
PN WO9837919-A1.
XX
PD 03-SEP-1998.
XX
PF 25-FEB-1998; 98WO-US03678.
XX
PR 28-FEB-1997; 97US-0039405.
XX
PA (IOWA ) UNIV IOWA RES FOUND.
XX
PI Krieg AM, Schwartz DA;
XX
DR WPI; 1998-480941/41.
XX
PT Use of nucleic acids containing an unmethylated CpG - for treating a
PT subject having or at risk of having an acute decrement in air flow
PT or inhibiting an inflammatory response
XX
PS Disclosure; Page 13; 65pp; English.
XX
CC This sequence represents an unmethylated CpG dinucleotide, and can be
CC used in the method of the invention. The method is for treating a subject
CC having, or at risk of having an acute decrement in air flow, comprising
CC administering a nucleic acid sequence containing at least one
CC unmethylated CpG. The nucleic acids containing an unmethylated CpG
CC dinucleotide affect an immune response in a subject by activating natural
CC killer cells (NK) or redirecting a subject's immune response from a Th2
CC to a Th1 response by inducing monocytic and other cells to produce Th1
CC cytokines. They can be used to treat pulmonary disorders having an
CC immunologic component, such as asthma or environmentally induced airway
CC disease. They can also be used to treat diseases associated with
CC Gram-positive bacterial infections or endotoxaemia including bacterial
CC meningitis, neonatal sepsis, cystic fibrosis, inflammatory bowel disease
CC and liver cirrhosis, Gram-negative pneumonia, Gram-negative abdominal
CC abscess, haemorrhagic shock, disseminated intravascular coagulation, or
CC an inflammatory response to lipopolysaccharide.
XX
SQ Sequence 20 BP; 2 A; 6 C; 4 G; 8 T; 0 other;

Query Match 100.0%; Score 20; DB 19; Length 20;
Best Local Similarity 100.0%; Pred. No. 3;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 TCCATGTCGTTCCTGATGCT 20
||||||||||||||||||||
Db 1 TCCATGTCGTTCCTGATGCT 20

RESULT 3
AAV27707
ID AAV27707 standard; DNA; 20 BP.
XX
AC AAV27707;
XX
DT 01-OCT-1998 (first entry)
XX
DE Immunostimulatory oligodeoxyribonucleotide of the invention.
XX
KW Immunostimulatory; oligodeoxyribonucleotide; ODN;
KW unmethylated CpG dinucleotide; activate; lymphocyte; immune response;
KW Th2; Th1; cytokine; treatment; prevention; asthma; autoimmune disease;
KW desensitisation therapy; artificial adjuvant; antibody generation; ss.
XX
OS Synthetic.
XX
PN WO9818810-A1.
XX
PD 07-MAY-1998.
XX
PF 30-OCT-1997; 97WO-US19791.
XX
PR 30-OCT-1996; 96US-0738652.
XX
PA (IOWA ) UNIV IOWA RES FOUND.
XX
PI Kline JN, Krieg AM;
XX
DR WPI; 1998-272127/24.
XX
PT New immunostimulatory nucleic acid molecules - which contain at
PT least one unmethylated CpG dinucleotide, used for treating e.g.
PT tumours, infections or autoimmune disease
XX
PS Disclosure; Page 28; 109pp; English.
XX
CC AAV27641-751 represent immunostimulatory oligodeoxyribonucleotides
CC (ODNs) of the invention. The ODNs contain at least one unmethylated CpG
CC dinucleotide, and have the formula:
CC 5' N1X1CGX2N2 3', where at least one nucleotide separates consecutive
CC CpGs, X1 is adenine, guanine, or thymine, X2 is cytosine or thymine, N
CC is any nucleotide and N1+N2 is 0-26 bases with the provision that N1 and
CC N2 does not contain a CCGG tetramer or more than one CCG or CGG trimer
CC OR 5' NX1X2CGX3X4N 3', where at least one nucleotide separates
CC consecutive CpGs, X1 and X2 are selected from GpT, GpG, GpA, ApT and ApA,
CC X3and X4 are selected from TpT or CpT, N is any nucleotide and N1+N2 is
CC 0-26 bases with the provision that N1 and N2 does not contain a CCGG
CC tetramer or more than one CCG or CGG trimer.
CC The ODNs activate lymphocytes in a subject and redirect a subject's
CC immune response from a Th2 to a Th1 (e.g. by inducing monocytic cells
CC and other cells to produce Th1 cytokines, including IL-12, IFN-gamma and
CC GM-CSF). The ODNs can be used to treat or prevent an asthmatic disorder,
CC autoimmune diseases, in desensitisation therapy, as an artificial
CC adjuvant during antibody generation in a mammal such as a mouse or a

```
CC   human.
XX
SQ   Sequence 20 BP; 2 A; 6 C; 4 G; 8 T; 0 other;

  Query Match             100.0%;  Score 20;  DB 19;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 3;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       1 TCCATGTCGTTCCTGATGCT 20
           ||||||||||||||||||||
Db       1 TCCATGTCGTTCCTGATGCT 20


RESULT 4
AAV27647
ID   AAV27647 standard; DNA; 20 BP.
XX
AC   AAV27647;
XX
DT   01-OCT-1998  (first entry)
XX
DE   Immunostimulatory oligodeoxyribonucleotide of the invention.
XX
KW   Immunostimulatory; oligodeoxyribonucleotide; ODN;
KW   unmethylated CpG dinucleotide; activate; lymphocyte; immune response;
KW   Th2; Th1; cytokine; treatment; prevention; asthma; autoimmune disease;
KW   desensitisation therapy; artificial adjuvant; antibody generation; ss.
XX
OS   Synthetic.
XX
PN   WO9818810-A1.
XX
PD   07-MAY-1998.
XX
PF   30-OCT-1997;   97WO-US19791.
XX
PR   30-OCT-1996;   96US-0738652.
XX
PA   (IOWA ) UNIV IOWA RES FOUND.
XX
PI   Kline JN,  Krieg AM;
XX
DR   WPI; 1998-272127/24.
XX
PT   New immunostimulatory nucleic acid molecules - which contain at
PT   least one unmethylated CpG dinucleotide, used for treating e.g.
PT   tumours, infections or autoimmune disease
XX
PS   Claim 23; Page 82; 109pp; English.
XX
CC   AAV27641-751 represent immunostimulatory oligodeoxyribonucleotides
CC   (ODNs) of the invention. The ODNs contain at least one unmethylated CpG
CC   dinucleotide, and have the formula:
CC   5' N1X1CGX2N2 3', where at least one nucleotide separates consecutive
CC   CpGs, X1 is adenine, guanine, or thymine, X2 is cytosine or thymine, N
CC   is any nucleotide and N1+N2 is 0-26 bases with the provision that N1 and
CC   N2 does not contain a CCGG tetramer or more than one CCG or CGG trimer
CC   OR 5' NX1X2CGX3X4N 3', where at least one nucleotide separates
CC   consecutive CpGs, X1 and X2 are selected from GpT, GpG, GpA, ApT and ApA,
CC   X3and X4 are selected from TpT or CpT, N is any nucleotide and N1+N2 is
CC   0-26 bases with the provision that N1 and N2 does not contain a CCGG
CC   tetramer or more than one CCG or CGG trimer.
CC   The ODNs activate lymphocytes in a subject and redirect a subject's
CC   immune response from a Th2 to a Th1 (e.g. by inducing monocytic cells
CC   and other cells to produce Th1 cytokines, including IL-12, IFN-gamma and
CC   GM-CSF). The ODNs can be used to treat or prevent an asthmatic disorder,
CC   autoimmune diseases, in desensitisation therapy, as an artificial
CC   adjuvant during antibody generation in a mammal such as a mouse or a
CC   human.
XX
SQ   Sequence 20 BP; 2 A; 6 C; 4 G; 8 T; 0 other;

  Query Match             100.0%;  Score 20;  DB 19;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 3;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       1 TCCATGTCGTTCCTGATGCT 20
           ||||||||||||||||||||
Db       1 TCCATGTCGTTCCTGATGCT 20


RESULT 5
AAZ41894
ID   AAZ41894 standard; DNA; 20 BP.
XX
AC   AAZ41894;
XX
DT   24-JAN-2000  (first entry)
XX
DE   IL-12 secretion inducing CpG oligonucleotide 39.
XX
KW   CpG oligonucleotide; phosphorothioate; interleukin-12; IL-12; secretion;
KW   human PBMC; immune response; cancer; HIV; bacterial disease; asthma;
KW   neoplastic disorder; jaagsiekte; B cell; NK cell; ss; cytokine;
KW   antigen presenting cell; infection; allergic disease.
XX
OS   Synthetic.
XX
PN   WO9951259-A2.
XX
PD   14-OCT-1999.
XX
PF   02-APR-1999;   99WO-US07335.
XX
PR   03-APR-1998;   98US-0080729.
XX
PA   (IOWA ) UNIV IOWA RES FOUND.
XX
PI   Krieg AM,  Weiner G;
XX
DR   WPI; 1999-620169/53.
XX
PT   Novel synergistic combinations of immunostimulatory oligonucleotides
PT   and immunopotentiating cytokines are useful for stimulating the immune
PT   system  -
XX
PS   Example 8; Page 77; 91pp; English.
XX
CC   Sequences AAZ41856-Z41949 are phosphorothioate CpG oligonucleotides
CC   which are used in the invention to induce interleukin-12 (IL-12)
CC   secretion from human PBMC. The invention comprises stimulating an immune
CC   response in a subject comprising administering to a subject exposed to an
CC   antigen, an immunopotentiating cytokine and an immunostimulatory CpG
CC   oligonucleotide to induce a synergistic antigen specific immune
CC   response. The methods are useful for treating cancer by stimulating an
CC   antigen specific immune response against a cancer antigen. The methods
CC   can also be used to treat neoplastic disorders in humans, including but
CC   not limited to: sarcoma, carcinoma, fibroma, Lymphoma, melanoma,
CC   neuroblastoma, retinoblastoma, and glioma. The methods are also useful
CC   for treating infectious diseases, e.g. viral diseases such as HIV,
CC   bacterial diseases, and fungal diseases. The methods may also be used to
CC   treat allergic diseases, e.g. asthma. The methods and compositions may
CC   also be applied to treat cancer and tumours in non human subjects,
CC   e.g. cats and dogs. Neoplasias affecting agricultural livestock may also
CC   be treated and include leukaemia, haemangiopericytoma and bovine ocular
CC   neoplasia. Chronic, infectious, contagious diseases of sheep and goats
CC   caused by the bacterium Corynebacterium pseudotuberculosis, and
CC   contagious lung tumour of sheep caused by jaagsiekte may also be
CC   treated. CpG oligonucleotides can be useful in activating B cells, NK
CC   cells, and antigen presenting cells, such as monocytes and macrophages.
CC   CpG oligonucleotides enhance antibody dependent cellular cytotoxicity and
CC   can be used as an adjuvant in conjunction with tumour antigens to
CC   protect against a tumour challenge.
XX
SQ   Sequence 20 BP; 2 A; 6 C; 4 G; 8 T; 0 other;
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  Query Match             100.0%;  Score 20;  DB 20;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 3;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       1 TCCATGTCGTTCCTGATGCT 20
           ||||||||||||||||||||
Db       1 TCCATGTCGTTCCTGATGCT 20


RESULT 6
AAZ41903
ID   AAZ41903 standard; DNA; 20 BP.
XX
AC   AAZ41903;
XX
DT   24-JAN-2000  (first entry)
XX
DE   IL-12 secretion inducing CpG oligonucleotide 48.
XX
KW   CpG oligonucleotide; phosphorothioate; interleukin-12; IL-12; secretion;
KW   human PBMC; immune response; cancer; HIV; bacterial disease; asthma;
KW   neoplastic disorder; jaagsiekte; B cell; NK cell; ss; cytokine;
KW   antigen presenting cell; infection; allergic disease.
XX
OS   Synthetic.
XX
PN   WO9951259-A2.
XX
PD   14-OCT-1999.
XX
PF   02-APR-1999;   99WO-US07335.
XX
PR   03-APR-1998;   98US-0080729.
XX
PA   (IOWA ) UNIV IOWA RES FOUND.
XX
PI   Krieg AM,  Weiner G;
XX
DR   WPI; 1999-620169/53.
XX
PT   Novel synergistic combinations of immunostimulatory oligonucleotides
PT   and immunopotentiating cytokines are useful for stimulating the immune
PT   system -
XX
PS   Example 8; Page 79; 91pp; English.
XX
CC   Sequences AAZ41856-Z41949 are phosphorothioate CpG oligonucleotides
CC   which are used in the invention to induce interleukin-12 (IL-12)
CC   secretion from human PBMC. The invention comprises stimulating an immune
CC   response in a subject comprising administering to a subject exposed to an
CC   antigen, an immunopotentiating cytokine and an immunostimulatory CpG
CC   oligonucleotide to induce a synergistic antigen specific immune
CC   response. The methods are useful for treating cancer by stimulating an
CC   antigen specific immune response against a cancer antigen. The methods
CC   can also be used to treat neoplastic disorders in humans, including but
CC   not limited to: sarcoma, carcinoma, fibroma, Lymphoma, melanoma,
CC   neuroblastoma, retinoblastoma, and glioma. The methods are also useful
CC   for treating infectious diseases, e.g. viral diseases such as HIV,
CC   bacterial diseases, and fungal diseases. The methods may also be used to
CC   treat allergic diseases, e.g. asthma. The methods and compositions may
CC   also be applied to treat cancer and tumours in non human subjects,
CC   e.g. cats and dogs. Neoplasias affecting agricultural livestock may also
CC   be treated and include leukaemia, haemangiopericytoma and bovine ocular
CC   neoplasia. Chronic, infectious, contagious diseases of sheep and goats
CC   caused by the bacterium Corynebacterium pseudotuberculosis, and
CC   contagious lung tumour of sheep caused by jaagsiekte may also be
CC   treated. CpG oligonucleotides can be useful in activating B cells, NK
CC   cells, and antigen presenting cells, such as monocytes and macrophages.
CC   CpG oligonucleotides enhance antibody dependent cellular cytotoxicity and
CC   can be used as an adjuvant in conjunction with tumour antigens to
CC   protect against a tumour challenge.
XX
SQ   Sequence 20 BP; 2 A; 6 C; 4 G; 8 T; 0 other;

  Query Match             100.0%;  Score 20;  DB 20;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 3;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       1 TCCATGTCGTTCCTGATGCT 20
           ||||||||||||||||||||
Db       1 TCCATGTCGTTCCTGATGCT 20


RESULT 7
AAA90452
ID   AAA90452 standard; DNA; 20 BP.
XX
AC   AAA90452;
XX
DT   10-JAN-2001  (first entry)
XX
DE   CpG adjuvant oligonucleotide, SEQ ID NO:6.
XX
KW   CpG oligonucleotide; CpG motif; adjuvant; microdroplet emulsion;
KW   microemulsion; adsorbent microparticle; vaccine; Th1 immune response;
KW   viral infection; bacterial infection; parasitic infection; HCV; HBV;
KW   hepatitis C virus; hepatitis B virus; herpes simplex virus; HSV; HIV;
KW   human immunodeficiency virus; cytomegalovirus; CMV; influenza virus;
KW   rabies virus; cholera; diphtheria; tetanus; pertussis;
KW   Helicobacter pylori; Haemophilus influenzae; malaria; ss.
XX
OS   Synthetic.
XX
PN   WO200050006-A2.
XX
PD   31-AUG-2000.
XX
PF   09-FEB-2000; 2000WO-US03331.
XX
PR   26-FEB-1999;   99US-0121858.
PR   29-JUL-1999;   99US-0146391.
PR   28-OCT-1999;   99US-0161997.
XX
PA   (CHIR ) CHIRON CORP.
XX
PI   O'Hagan D,  Ott GS,  Donnelly J,  Kazzaz J,  Ugozzoli M,  Singh M;
PI   Barackman J;
XX
DR   WPI; 2000-587123/55.
XX
PT   Microemulsion having an adsorbent surface comprising a microdroplet
PT   emulsion consisting of a metabolizable oil and an emulsifying agent
PT   which is a detergent, useful as a vaccine to treat bacterial, viral,
PT   and parasitic infection -
XX
PS   Claim 17; Page 40; 95pp; English.
XX
CC   The invention relates to a microdroplet emulsion (microemulsion) with an
CC   adsorbent surface, and which comprises a metabolisable oil and an
CC   emulsifying agent (a detergent). It also relates to a composition
CC   comprising the microemulsion and a microparticle with an adsorbent
CC   surface, where the microparticle comprises a polymer selected from a
CC   poly(alpha-hydroxy acid), a polyhydroxy butyric acid, a
CC   polycaprolactone, a polyorthoester, a polyanhydride, and a
CC   polycyanoacrylate, and a second detergent. The surface of the
CC   microparticles efficiently adsorb biologically active macromolecules such
CC   as DNA, polypeptides, antigens, hormones, pharmaceuticals, enzymes,
CC   mediators of transcription or translation, metabolic intermediates and
CC   adjuvants. Additionally, a second biologically active molecule may be
CC   encapsulated within the microparticle. The microemulsion can be used in
CC   methods of immunising a host animal, particularly a human, against a
CC   viral, bacterial or parasitic infection, and in methods of increasing a
CC   Th1 immune response. The microemulsions (having the appropriate antigens
CC   adsorbed) may be particularly used as vaccines for hepatitis C virus
CC   (HCV), hepatitis B virus (HBV), herpes simplex virus (HSV), human
CC   immunodeficiency virus (HIV), cytomegalovirus (CMV), influenza virus, and
```

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CC   rabies virus; the bacteria which cause cholera, diphtheria, tetanus and
CC   pertussis; Helicobacter pylori and Haemophilus influenzae; and
CC   malaria-causing parasites. Sequences AAA90447-A90467 represent Th1
CC   lymphocyte stimulating oligonucleotides containing at least one CpG motif
CC   which are claimed for use as adjuvants in the compositions of the
CC   invention.
XX
SQ   Sequence 20 BP; 2 A; 6 C; 4 G; 8 T; 0 other;

  Query Match            100.0%;  Score 20;  DB 21;  Length 20;
  Best Local Similarity  100.0%;  Pred. No. 3;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGTCGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATGTCGTTCCTGATGCT 20


RESULT 8
AAA63585
ID   AAA63585 standard; DNA; 20 BP.
XX
AC   AAA63585;
XX
DT   04-DEC-2000  (first entry)
XX
DE   Immune stimulatory nucleic acid stimulating cytokine production.
XX
KW   Viral core antigen; HBcAg; hapten presentation; immune response;
KW   TH1 immune response; gene therapy; ss.
XX
OS   Unidentified.
XX
PN   WO200046365-A1.
XX
PD   10-AUG-2000.
XX
PF   02-FEB-2000; 2000WO-US02413.
XX
PR   02-FEB-1999;   99US-0118526.
XX
PA   (UYVI-) UNIV VIRGINIA COMMONWEALTH.
PA   (BIOC-) BIOCACHE PHARM LLC.
XX
PI   Coleman TP,  Peterson DL;
XX
DR   WPI; 2000-532900/48.
XX
PT   A composition useful for inducing an immune response comprises
PT   nucleocapsid protein monomers, derived from duck hepatitis B virus,
PT   which are assembled to form a particle -
XX
PS   Claim 7; Page 22; 67pp; English.
XX
CC   The present sequence represents an immune stimulatory nucleic acid,
CC   which is included in the particles of the invention. The structure of
CC   these particles is based in part on duck hepatitis B viral core antigen
CC   (HBcAg). The particles are used for hapten presentation so as to elicit
CC   an immune response. The particles are formed by assembling recombinant
CC   forms of duck HBcAg, and are highly immunmogenic. Native duck HBcAg
CC   particles are 32-34 nm particles composed of 240 identical subunit
CC   monomers, and are very similar to human HBcAg. However, duck HBcAg is
CC   not cross-reactive with human HBcAg. Recombinant forms of duck hepatitis
CC   B virus elicit a TH1 (T helper cell) immune response. The duck HBcAg
CC   particles are used to elicit an immune response in a patient.
CC   Polynucleotides encoding the particles may be used in gene therapy
CC   protocols.
XX
SQ   Sequence 20 BP; 2 A; 6 C; 4 G; 8 T; 0 other;

  Query Match            100.0%;  Score 20;  DB 21;  Length 20;
  Best Local Similarity  100.0%;  Pred. No. 3;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGTCGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATGTCGTTCCTGATGCT 20


RESULT 9
AAZ60973
ID   AAZ60973 standard; DNA; 20 BP.
XX
AC   AAZ60973;
XX
DT   30-MAY-2000  (first entry)
XX
DE   Nucleotide sequence of an immunostimulatory CpG oligonucleotide.
XX
KW   Immunostimulatory; stereoisomer; CpG oligonucleotide; Th2; Th1; asthma;
KW   allergic reaction; allergen; cancer antigen; cancer; immunoinhibitory;
KW   inflammatory disease; inflammatory bowel disease; autoimmune disease;
KW   gingivitis; psoriasis; sepsis; ss.
XX
OS   Synthetic.
XX
PN   WO200006588-A1.
XX
PD   10-FEB-2000.
XX
PF   27-JUL-1999;   99WO-US17100.
XX
PR   27-JUL-1998;   98US-0094370.
XX
PA   (IOWA ) UNIV IOWA RES FOUND.
PA   (CPGI-) CPG IMMUNOPHARMACEUTICALS INC.
XX
PI   Krieg AM;
XX
DR   WPI; 2000-195254/17.
XX
PT   Immunostimulatory and immunoinhibitory stereoisomers of CpG
PT   oligonucleotides useful for immunotherapy of cancer -
XX
PS   Disclosure; Page 11; 88pp; English.
XX
CC   AAZ60933-Z61015 represent immunostimulatory stereoisomers of CpG
CC   oligonucleotides. The sequences are derived from generic nucleic
CC   acid sequence, from which immunoinhibitory sequences may also be
CC   derived. The immunostimulatory nucleic acids can be co-administered
CC   with an antigen to induce an antigen-specific immune response. The
CC   immunostimulatory nucleic acids can also be used in methods for
CC   redirecting a subject's immune response from a Th2 to a Th1, for
CC   treating asthma, for desensitising a subject against the occurrence
CC   of an allergic reaction in response to contact with an allergen, for
CC   activating an immune cell, especially a lymphocyte or a dendritic cell
CC   expressing a cancer antigen or for treating cancer. The immunoinhibitory
CC   nucleic acid can be used to prevent an immune response, especially where
CC   the immune response in the subject is excessive due to having received
CC   an immune stimulating compound. The immunoinhibitory nucleic acid can
CC   be used to treat a subject having or at risk of an inflammatory disease,
CC   especially inflammatory bowel disease, autoimmune disease, gingivitis,
CC   psoriasis and sepsis.
XX
SQ   Sequence 20 BP; 2 A; 6 C; 4 G; 8 T; 0 other;

  Query Match            100.0%;  Score 20;  DB 21;  Length 20;
  Best Local Similarity  100.0%;  Pred. No. 3;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGTCGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATGTCGTTCCTGATGCT 20


RESULT 10
```

```
AAZ47634
ID   AAZ47634 standard; DNA; 20 BP.
XX
AC   AAZ47634;
XX
DT   01-MAR-2000  (first entry)
XX
DE   Parasitic infection preventing exemplary oligonucleotide SEQ ID NO:40.
XX
KW   Immune system; immunostimulatory; parasitic infection; parasite;
KW   CpG oligonucleotide; antigen presenting cell; natural killer cell;
KW   granulocyte; malaria; helminth disease; tick; mite; ss.
XX
OS   Synthetic.
XX
PN   WO9956755-A1.
XX
PD   11-NOV-1999.
XX
PF   06-MAY-1999;   99WO-US09863.
XX
PR   06-MAY-1998;   98US-0084512.
XX
PA   (IOWA ) UNIV IOWA RES FOUND.
PA   (OTTA-) OTTAWA CIVIC LOEB RES INST.
PA   (USNA ) US SEC OF NAVY.
XX
PI   Gramzinski RA,  Krieg AM,  Davis HL,  Hoffman SL;
XX
DR   WPI; 2000-062123/05.
XX
PT   Treating and preventing parasitic infections using CpG oligonucleotides
XX
PS   Disclosure; Page 20; 74pp; English.
XX
CC   The present invention describes a method for treating and preventing
CC   parasitic infection by administration of unmethylated CpG
CC   oligonucleotides. The CpG oligonucleotides are able to stimulate the
CC   innate immune system via the activation of immune cells, such as antigen
CC   presenting cells, natural killer cells and granulocytes. The CpG
CC   oligonucleotides and the method can be used to treat and prevent
CC   parasitic diseases, such as malaria, helminth diseases, tick and mites
CC   in humans, animals and poultry. The oligonucleotides may be administered
CC   in conjunction with parasiticides or other therapeutic compounds after
CC   an organism has been diagnosed to be infected with parasites. Diseases
CC   which can be treated or prevented include those caused by Plasmodium
CC   falciparum, P. ovale, P. malariae, P. vivax, P. knowlesi, Babesia
CC   microti, B. divergens, Trypanosoma cruzi, T. gambiense, T. rhodesiense,
CC   Schistosoma mansoni, Toxoplasma gondii, Trichinella spiralis, Leishmania
CC   major, L. donovani, L. braziliensis, and L. tropica. The parasite is
CC   especially capable of causing malaria. The present sequence represents
CC   a parasitic infection preventing exemplary oligonucleotide sequence from
CC   the present invention.
XX
SQ   Sequence 20 BP; 2 A; 6 C; 4 G; 8 T; 0 other;

  Query Match             100.0%;  Score 20;  DB 21;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 3;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       1 TCCATGTCGTTCCTGATGCT 20
           ||||||||||||||||||||
Db       1 TCCATGTCGTTCCTGATGCT 20


RESULT 11
AAZ47641
ID   AAZ47641 standard; DNA; 20 BP.
XX
AC   AAZ47641;
XX
DT   01-MAR-2000  (first entry)
XX
DE   Parasitic infection preventing exemplary oligonucleotide SEQ ID NO:47.
XX
KW   Immune system; immunostimulatory; parasitic infection; parasite;
KW   CpG oligonucleotide; antigen presenting cell; natural killer cell;
KW   granulocyte; malaria; helminth disease; tick; mite; ss.
XX
OS   Synthetic.
XX
PN   WO9956755-A1.
XX
PD   11-NOV-1999.
XX
PF   06-MAY-1999;   99WO-US09863.
XX
PR   06-MAY-1998;   98US-0084512.
XX
PA   (IOWA ) UNIV IOWA RES FOUND.
PA   (OTTA-) OTTAWA CIVIC LOEB RES INST.
PA   (USNA ) US SEC OF NAVY.
XX
PI   Gramzinski RA,  Krieg AM,  Davis HL,  Hoffman SL;
XX
DR   WPI; 2000-062123/05.
XX
PT   Treating and preventing parasitic infections using CpG oligonucleotides
XX
PS   Disclosure; Page 20; 74pp; English.
XX
CC   The present invention describes a method for treating and preventing
CC   parasitic infection by administration of unmethylated CpG
CC   oligonucleotides. The CpG oligonucleotides are able to stimulate the
CC   innate immune system via the activation of immune cells, such as antigen
CC   presenting cells, natural killer cells and granulocytes. The CpG
CC   oligonucleotides and the method can be used to treat and prevent
CC   parasitic diseases, such as malaria, helminth diseases, tick and mites
CC   in humans, animals and poultry. The oligonucleotides may be administered
CC   in conjunction with parasiticides or other therapeutic compounds after
CC   an organism has been diagnosed to be infected with parasites. Diseases
CC   which can be treated or prevented include those caused by Plasmodium
CC   falciparum, P. ovale, P. malariae, P. vivax, P. knowlesi, Babesia
CC   microti, B. divergens, Trypanosoma cruzi, T. gambiense, T. rhodesiense,
CC   Schistosoma mansoni, Toxoplasma gondii, Trichinella spiralis, Leishmania
CC   major, L. donovani, L. braziliensis, and L. tropica. The parasite is
CC   especially capable of causing malaria. The present sequence represents
CC   a parasitic infection preventing exemplary oligonucleotide sequence from
CC   the present invention.
XX
SQ   Sequence 20 BP; 2 A; 6 C; 4 G; 8 T; 0 other;

  Query Match             100.0%;  Score 20;  DB 21;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 3;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       1 TCCATGTCGTTCCTGATGCT 20
           ||||||||||||||||||||
Db       1 TCCATGTCGTTCCTGATGCT 20


RESULT 12
AAZ47848
ID   AAZ47848 standard; DNA; 20 BP.
XX
AC   AAZ47848;
XX
DT   07-MAR-2000  (first entry)
XX
DE   Immunostimulatory oligonucleotide sequence SEQ ID NO:49.
XX
KW   Mucosal immunity; immunostimulatory; CpG motif; immune response;
KW   antigen; allergic reaction; cancer; infectious disease; asthma; eczema;
KW   allergic rhinitis; coryza; hay fever; conjunctivitis; bronchial asthma;
KW   urticaria; food allergy; atopic condition; mucosal delivery; ss.
XX
```

OS Synthetic.
XX
PN WO9961056-A2.
XX
PD 02-DEC-1999.
XX
PF 21-MAY-1999; 99WO-US11359.
XX
PR 22-MAY-1998; 98US-0086393.
XX
PA (LOEB-) LOEB HEALTH RES INST AT OTTAWA HOSPITAL.
PA (CPGI-) CPG IMMUNOPHARMACEUTICALS INC.
XX
PI McCluskie MJ, Davis HL;
XX
DR WPI; 2000-062585/05.
XX
PT Use of CpG containing oligonucleotides as adjuvants for inducing an
PT immune response -
XX
PS Disclosure; Page 25; 116pp; English.
XX
CC The present invention describes a method using CpG containing
CC oligonucleotides (ONs) as adjuvants for inducing an immune response.
CC The method for inducing a mucosal immune response (MIR) comprises:
CC (1) administering to a mucosal surface of a subject an ON, having a
CC sequence including at least the formula (I); and (2) exposing the
CC subject to an antigen to induce the MIR, where the antigen is not
CC encoded in a nucleic acid vector: 5'X1X2CGX3X43' (I), where
CC C and G = unmethylated, and X1, X2, X3 and X4 = nucleotides. The method
CC can be used for treating a subject at risk of developing an allergic
CC reaction, cancer or infectious disease. It can be used for treating
CC asthmatic subjects, eczema, allergic rhinitis or coryza, hay fever,
CC conjunctivitis, bronchial asthma, urticaria, food allergies or other
CC atopic conditions. The antigen may be derived from infectious organisms
CC such as infectious bacteria, viruses, parasites or fungi. It can be used
CC in humans or animals, e.g. bovine, equine, feline, swine, aquatic or
CC avian species. The ONs act as potent mucosal adjuvants to induce immune
CC responses at both local and remote sites against an antigen
CC administered to the mucosal tissue. Both systemic and mucosal immunity
CC are induced by mucosal delivery of the ONs. AAZ47808 to AAZ47891
CC represent examples of immunostimulatory oligonucleotides given in the
CC present invention.
XX
SQ Sequence 20 BP; 2 A; 6 C; 4 G; 8 T; 0 other;

Query Match 100.0%; Score 20; DB 21; Length 20;
Best Local Similarity 100.0%; Pred. No. 3;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 TCCATGTCGTTCCTGATGCT 20
||||||||||||||||||||
Db 1 TCCATGTCGTTCCTGATGCT 20

RESULT 13
AAZ47970
ID AAZ47970 standard; DNA; 20 BP.
XX
AC AAZ47970;
XX
DT 08-MAR-2000 (first entry)
XX
DE Immune remodeling inducing CpG oligonucleotide SEQ ID NO:48.
XX
KW Haematopoiesis; regulation; CpG oligonucleotide; phosphorothioate;
KW immune remodeling; thrombopoiesis; anaemia; immune system; cancer;
KW immune response; allergic reaction; infectious disease; asthma;
KW thrombocytopaenia; immunohaemolytic disorder; genetic disorder;
KW haemoglobinopathy; kidney failure; chronic inflammatory disorder;
KW rheumatoid arthritis; ss.
XX
OS Synthetic.
XX
PN WO9958118-A2.
XX
PD 18-NOV-1999.
XX
PF 14-MAY-1999; 99WO-IB01285.
XX
PR 14-MAY-1998; 98US-0085516.
PR 02-FEB-1999; 99US-0241653.
XX
PA (CPGI-) CPG IMMUNOPHARMACEUTICALS GMBH.
PA (CPGI-) CPG IMMUNOPHARMACEUTICALS INC.
XX
PI Wagner H, Lipford G;
XX
DR WPI; 2000-062261/05.
XX
PT Use of CpG containing oligonucleotides for, e.g. inducing an
PT antigen-specific immune response -
XX
PS Example 1; Page 66; 116pp; English.
XX
CC The present invention describes a method using CpG containing
CC oligonucleotides (ONs) for regulating immune system remodeling and for
CC regulating haematopoiesis. The method for inducing an antigen-specific
CC immune response comprises: (1) administering an ON having a sequence
CC including at least the formula (I); and (2) exposing the subject to an
CC antigen at least 3 days after the ON is administered to the subject to
CC produce an antigen-specific immune response: 5' X1CGX2 3' (I), where
CC the ON = includes at least 8 nucleotides; C and G = unmethylated, and
CC X1 and X2 = nucleotides. The method can be used for inducing an immune
CC response against an antigen such as cells, cell extracts, proteins,
CC polysaccharides, polysaccharide conjugates, lipids, glycolipids,
CC carbohydrate, viral extracts, viruses, bacteria, fungi, parasites and
CC allergens. It can be used in a subject at risk of developing cancer or
CC an allergic reaction. It can also be used for treating an infectious
CC disease, allergic diseases and asthma, as well as thrombocytopaenia
CC which is drug-induced, due to an autoimmune disorder such as idiopathic
CC thrombocytopenic purpura, or resulting from accidental or therapeutic
CC radiation exposure. It can also be used for treating anaemia such as
CC drug-induced anaemia, immunohaemolytic disorder, genetic disorders such
CC as haemoglobinopathy and inherited haemolytic anaemia, inadequate
CC production despite adequate iron stores, chronic disease such as kidney
CC failure, and chronic inflammatory disorder such as rheumatoid arthritis,
CC or anaemia resulting from accidental or therapeutic radiation exposure.
CC AAZ47932 to AAZ48029 represent phosphorothioate CpG oligonucleotides
CC used in the exemplification of the present invention.
XX
SQ Sequence 20 BP; 2 A; 6 C; 4 G; 8 T; 0 other;

Query Match 100.0%; Score 20; DB 21; Length 20;
Best Local Similarity 100.0%; Pred. No. 3;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 TCCATGTCGTTCCTGATGCT 20
||||||||||||||||||||
Db 1 TCCATGTCGTTCCTGATGCT 20

RESULT 14
AAZ47978
ID AAZ47978 standard; DNA; 20 BP.
XX
AC AAZ47978;
XX
DT 08-MAR-2000 (first entry)
XX
DE Immune remodeling inducing CpG oligonucleotide SEQ ID NO:56.
XX
KW Haematopoiesis; regulation; CpG oligonucleotide; phosphorothioate;
KW immune remodeling; thrombopoiesis; anaemia; immune system; cancer;
KW immune response; allergic reaction; infectious disease; asthma;
KW thrombocytopaenia; immunohaemolytic disorder; genetic disorder;

KW haemoglobinopathy; kidney failure; chronic inflammatory disorder;
KW rheumatoid arthritis; ss.
XX
OS Synthetic.
XX
PN WO9958118-A2.
XX
PD 18-NOV-1999.
XX
PF 14-MAY-1999; 99WO-IB01285.
XX
PR 14-MAY-1998; 98US-0085516.
PR 02-FEB-1999; 99US-0241653.
XX
PA (CPGI-) CPG IMMUNOPHARMACEUTICALS GMBH.
PA (CPGI-) CPG IMMUNOPHARMACEUTICALS INC.
XX
PI Wagner H, Lipford G;
XX
DR WPI; 2000-062261/05.
XX
PT Use of CpG containing oligonucleotides for, e.g. inducing an
PT antigen-specific immune response -
XX
PS Example 1; Page 66; 116pp; English.
XX
CC The present invention describes a method using CpG containing
CC oligonucleotides (ONs) for regulating immune system remodeling and for
CC regulating haematopoiesis. The method for inducing an antigen-specific
CC immune response comprises: (1) administering an ON having a sequence
CC including at least the formula (I); and (2) exposing the subject to an
CC antigen at least 3 days after the ON is administered to the subject to
CC produce an antigen-specific immune response: 5' X1CGX2 3' (I), where
CC the ON = includes at least 8 nucleotides; C and G = unmethylated, and
CC X1 and X2 = nucleotides. The method can be used for inducing an immune
CC response against an antigen such as cells, cell extracts, proteins,
CC polysaccharides, polysaccharide conjugates, lipids, glycolipids,
CC carbohydrate, viral extracts, viruses, bacteria, fungi, parasites and
CC allergens. It can be used in a subject at risk of developing cancer or
CC an allergic reaction. It can also be used for treating an infectious
CC disease, allergic diseases and asthma, as well as thrombocytopaenia
CC which is drug-induced, due to an autoimmune disorder such as idiopathic
CC thrombocytopenic purpura, or resulting from accidental or therapeutic
CC radiation exposure. It can also be used for treating anaemia such as
CC drug-induced anaemia, immunohaemolytic disorder, genetic disorders such
CC as haemoglobinopathy and inherited haemolytic anaemia, inadequate
CC production despite adequate iron stores, chronic disease such as kidney
CC failure, and chronic inflammatory disorder such as rheumatoid arthritis,
CC or anaemia resulting from accidental or therapeutic radiation exposure.
CC AAZ47932 to AAZ48029 represent phosphorothioate CpG oligonucleotides
CC used in the exemplification of the present invention.
XX
SQ Sequence 20 BP; 2 A; 6 C; 4 G; 8 T; 0 other;

Query Match 100.0%; Score 20; DB 21; Length 20;
Best Local Similarity 100.0%; Pred. No. 3;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 TCCATGTCGTTCCTGATGCT 20
||||||||||||||||||||
Db 1 TCCATGTCGTTCCTGATGCT 20

RESULT 15
AAZ47979
ID AAZ47979 standard; DNA; 20 BP.
XX
AC AAZ47979;
XX
DT 08-MAR-2000 (first entry)
XX
DE Immune remodeling inducing CpG oligonucleotide SEQ ID NO:57.
XX

KW Haematopoiesis; regulation; CpG oligonucleotide; phosphorothioate;
KW immune remodeling; thrombopoiesis; anaemia; immune system; cancer;
KW immune response; allergic reaction; infectious disease; asthma;
KW thrombocytopaenia; immunohaemolytic disorder; genetic disorder;
KW haemoglobinopathy; kidney failure; chronic inflammatory disorder;
KW rheumatoid arthritis; ss.
XX
OS Synthetic.
XX
PN WO9958118-A2.
XX
PD 18-NOV-1999.
XX
PF 14-MAY-1999; 99WO-IB01285.
XX
PR 14-MAY-1998; 98US-0085516.
PR 02-FEB-1999; 99US-0241653.
XX
PA (CPGI-) CPG IMMUNOPHARMACEUTICALS GMBH.
PA (CPGI-) CPG IMMUNOPHARMACEUTICALS INC.
XX
PI Wagner H, Lipford G;
XX
DR WPI; 2000-062261/05.
XX
PT Use of CpG containing oligonucleotides for, e.g. inducing an
PT antigen-specific immune response -
XX
PS Example 1; Page 66; 116pp; English.
XX
CC The present invention describes a method using CpG containing
CC oligonucleotides (ONs) for regulating immune system remodeling and for
CC regulating haematopoiesis. The method for inducing an antigen-specific
CC immune response comprises: (1) administering an ON having a sequence
CC including at least the formula (I); and (2) exposing the subject to an
CC antigen at least 3 days after the ON is administered to the subject to
CC produce an antigen-specific immune response: 5' X1CGX2 3' (I), where
CC the ON = includes at least 8 nucleotides; C and G = unmethylated, and
CC X1 and X2 = nucleotides. The method can be used for inducing an immune
CC response against an antigen such as cells, cell extracts, proteins,
CC polysaccharides, polysaccharide conjugates, lipids, glycolipids,
CC carbohydrate, viral extracts, viruses, bacteria, fungi, parasites and
CC allergens. It can be used in a subject at risk of developing cancer or
CC an allergic reaction. It can also be used for treating an infectious
CC disease, allergic diseases and asthma, as well as thrombocytopaenia
CC which is drug-induced, due to an autoimmune disorder such as idiopathic
CC thrombocytopenic purpura, or resulting from accidental or therapeutic
CC radiation exposure. It can also be used for treating anaemia such as
CC drug-induced anaemia, immunohaemolytic disorder, genetic disorders such
CC as haemoglobinopathy and inherited haemolytic anaemia, inadequate
CC production despite adequate iron stores, chronic disease such as kidney
CC failure, and chronic inflammatory disorder such as rheumatoid arthritis,
CC or anaemia resulting from accidental or therapeutic radiation exposure.
CC AAZ47932 to AAZ48029 represent phosphorothioate CpG oligonucleotides
CC used in the exemplification of the present invention.
XX
SQ Sequence 20 BP; 2 A; 6 C; 4 G; 8 T; 0 other;

Query Match 100.0%; Score 20; DB 21; Length 20;
Best Local Similarity 100.0%; Pred. No. 3;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 TCCATGTCGTTCCTGATGCT 20
||||||||||||||||||||
Db 1 TCCATGTCGTTCCTGATGCT 20

Search completed: March 1, 2003, 21:11:27
Job time : 148.25 secs

OM nucleic - nucleic search, using sw model

Run on: March 1, 2003, 21:01:26 ; Search time 41.5 Seconds
(without alignments)
147.796 Million cell updates/sec

Title: US-09-818-918-43
Perfect score: 20
Sequence: 1 tccatgtcgttcctgatgct 20

Scoring table: IDENTITY_NUC
Gapop 10.0 , Gapext 1.0

Searched: 441362 seqs, 153338381 residues

Total number of hits satisfying chosen parameters: 882724

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

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2: /cgn2_6/ptodata/1/ina/5B_COMB.seq:*
3: /cgn2_6/ptodata/1/ina/6A_COMB.seq:*
4: /cgn2_6/ptodata/1/ina/6B_COMB.seq:*
5: /cgn2_6/ptodata/1/ina/PCTUS_COMB.seq:*
6: /cgn2_6/ptodata/1/ina/backfiles1.seq:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

| Result No. | Score | % Query Match | Length | DB | ID | Description |
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| 1 | 20 | 100.0 | 20 | 4 | US-08-738-652-43 | Sequence 43, Appl |
| 2 | 20 | 100.0 | 20 | 4 | US-08-738-652-53 | Sequence 53, Appl |
| 3 | 20 | 100.0 | 20 | 4 | US-09-030-701-5 | Sequence 5, Appli |
| 4 | 20 | 100.0 | 20 | 4 | US-09-286-098-48 | Sequence 48, Appl |
| 5 | 20 | 100.0 | 20 | 4 | US-09-286-098-56 | Sequence 56, Appl |
| 6 | 20 | 100.0 | 20 | 4 | US-09-286-098-57 | Sequence 57, Appl |
| 7 | 20 | 100.0 | 20 | 4 | US-08-960-774-38 | Sequence 38, Appl |
| 8 | 20 | 100.0 | 20 | 4 | US-09-082-649B-71 | Sequence 71, Appl |
| 9 | 20 | 100.0 | 20 | 4 | US-09-325-193A-49 | Sequence 49, Appl |
| 10 | 20 | 100.0 | 20 | 4 | US-09-191-170-43 | Sequence 43, Appl |
| 11 | 20 | 100.0 | 20 | 4 | US-09-191-170-51 | Sequence 51, Appl |
| 12 | 19 | 95.0 | 20 | 4 | US-09-030-701-25 | Sequence 25, Appl |
| 13 | 19 | 95.0 | 20 | 4 | US-08-960-774-44 | Sequence 44, Appl |
| 14 | 19 | 95.0 | 20 | 4 | US-09-082-649B-72 | Sequence 72, Appl |
| 15 | 18.4 | 92.0 | 20 | 1 | US-08-436-714-7 | Sequence 7, Appli |
| 16 | 18.4 | 92.0 | 20 | 1 | US-08-442-705-7 | Sequence 7, Appli |
| 17 | 18.4 | 92.0 | 20 | 1 | US-08-332-829-7 | Sequence 7, Appli |
| 18 | 18.4 | 92.0 | 20 | 2 | US-09-133-774-11 | Sequence 11, Appl |
| 19 | 18.4 | 92.0 | 20 | 3 | US-08-386-063-21 | Sequence 21, Appl |
| 20 | 18.4 | 92.0 | 20 | 3 | US-08-386-063-25 | Sequence 25, Appl |
| 21 | 18.4 | 92.0 | 20 | 3 | US-09-303-862-11 | Sequence 11, Appl |
| 22 | 18.4 | 92.0 | 20 | 4 | US-08-386-063-21 | Sequence 21, Appl |
| 23 | 18.4 | 92.0 | 20 | 4 | US-08-386-063-25 | Sequence 25, Appl |
| 24 | 18.4 | 92.0 | 20 | 4 | US-08-738-652-7 | Sequence 7, Appli |
| 25 | 18.4 | 92.0 | 20 | 4 | US-08-738-652-31 | Sequence 31, Appl |
| 26 | 18.4 | 92.0 | 20 | 4 | US-08-738-652-33 | Sequence 33, Appl |
| 27 | 18.4 | 92.0 | 20 | 4 | US-08-738-652-34 | Sequence 34, Appl |
| 28 | 18.4 | 92.0 | 20 | 4 | US-08-738-652-35 | Sequence 35, Appl |
| 29 | 18.4 | 92.0 | 20 | 4 | US-08-738-652-37 | Sequence 37, Appl |
| 30 | 18.4 | 92.0 | 20 | 4 | US-08-738-652-41 | Sequence 41, Appl |
| 31 | 18.4 | 92.0 | 20 | 4 | US-08-738-652-42 | Sequence 42, Appl |
| 32 | 18.4 | 92.0 | 20 | 4 | US-08-738-652-44 | Sequence 44, Appl |
| 33 | 18.4 | 92.0 | 20 | 4 | US-08-738-652-54 | Sequence 54, Appl |
| 34 | 18.4 | 92.0 | 20 | 4 | US-09-030-701-4 | Sequence 4, Appli |
| 35 | 18.4 | 92.0 | 20 | 4 | US-09-286-098-22 | Sequence 22, Appl |
| 36 | 18.4 | 92.0 | 20 | 4 | US-09-286-098-23 | Sequence 23, Appl |
| 37 | 18.4 | 92.0 | 20 | 4 | US-09-286-098-24 | Sequence 24, Appl |
| 38 | 18.4 | 92.0 | 20 | 4 | US-09-286-098-42 | Sequence 42, Appl |
| 39 | 18.4 | 92.0 | 20 | 4 | US-09-286-098-46 | Sequence 46, Appl |
| 40 | 18.4 | 92.0 | 20 | 4 | US-09-286-098-47 | Sequence 47, Appl |
| 41 | 18.4 | 92.0 | 20 | 4 | US-08-960-774-7 | Sequence 7, Appli |
| 42 | 18.4 | 92.0 | 20 | 4 | US-08-960-774-28 | Sequence 28, Appl |
| 43 | 18.4 | 92.0 | 20 | 4 | US-08-960-774-36 | Sequence 36, Appl |
| 44 | 18.4 | 92.0 | 20 | 4 | US-08-960-774-37 | Sequence 37, Appl |
| 45 | 18.4 | 92.0 | 20 | 4 | US-09-082-649B-68 | Sequence 68, Appl |

ALIGNMENTS

RESULT 1
US-08-738-652-43
; Sequence 43, Application US/08738652B
; Patent No. 6207646
; GENERAL INFORMATION:
; APPLICANT: Krieg, Arthur M.
; TITLE OF INVENTION: Immunostimulatory Nucleic Acid Molecules
; FILE REFERENCE: C1039/7004.HCL
; CURRENT APPLICATION NUMBER: US/08/738,652B
; CURRENT FILING DATE: 1996-10-30
; EARLIER APPLICATION NUMBER: US 08/276,358
; EARLIER FILING DATE: 1994-07-15
; EARLIER APPLICATION NUMBER: US 08/386,063
; EARLIER FILING DATE: 1995-02-07
; NUMBER OF SEQ ID NOS: 55
; SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 43
; LENGTH: 20
; TYPE: DNA
; ORGANISM: Artificial Sequence
; FEATURE:
; OTHER INFORMATION: Synthetic oligonucleotide
US-08-738-652-43

Query Match 100.0%; Score 20; DB 4; Length 20;
Best Local Similarity 100.0%; Pred. No. 0.17;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

```
Qy       1 TCCATGTCGTTCCTGATGCT 20
           ||||||||||||||||||||
Db       1 TCCATGTCGTTCCTGATGCT 20
```

RESULT 2
US-08-738-652-53
; Sequence 53, Application US/08738652B
; Patent No. 6207646
; GENERAL INFORMATION:
; APPLICANT: Krieg, Arthur M.
; TITLE OF INVENTION: Immunostimulatory Nucleic Acid Molecules
; FILE REFERENCE: C1039/7004 HCL
; CURRENT APPLICATION NUMBER: US/08/738,652B
; CURRENT FILING DATE: 1996-10-30
; EARLIER APPLICATION NUMBER: US 08/276,358
; EARLIER FILING DATE: 1994-07-15
; EARLIER APPLICATION NUMBER: US 08/386,063
; EARLIER FILING DATE: 1995-02-07
; NUMBER OF SEQ ID NOS: 55
; SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 53

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;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic oligonucleotide
;   FEATURE:
;   NAME/KEY: modified_base
;   LOCATION: (8)...(8)
;   OTHER INFORMATION: m5c
US-08-738-652-53

  Query Match             100.0%;  Score 20;  DB 4;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 0.17;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGTCGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATGTCGTTCCTGATGCT 20


RESULT 3
US-09-030-701-5
; Sequence 5, Application US/09030701B
; Patent No. 6214806
; GENERAL INFORMATION:
;  APPLICANT:  Krieg, Arthur M.
;  APPLICANT:  Schwartz, David A.
;  TITLE OF INVENTION:  USE OF NUCLEIC ACIDS CONTAINING
;  TITLE OF INVENTION:  UNMETHYLATED CpG DINUCLEOTIDE IN THE TREATMENT OF
;  TITLE OF INVENTION:  LPS-ASSOCIATED DISORDERS
;  FILE REFERENCE:  C1039/7011
;  CURRENT APPLICATION NUMBER: US/09/030,701B
;  CURRENT FILING DATE:  1998-02-25
;  PRIOR APPLICATION NUMBER:  60/039,405
;  PRIOR FILING DATE:  1997-02-28
;  NUMBER OF SEQ ID NOS:  65
;  SOFTWARE:  FastSEQ for Windows Version 3.0
; SEQ ID NO 5
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: synthetic oligonucleotide
US-09-030-701-5

  Query Match             100.0%;  Score 20;  DB 4;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 0.17;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGTCGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATGTCGTTCCTGATGCT 20


RESULT 4
US-09-286-098-48
; Sequence 48, Application US/09286098
; Patent No. 6218371
; GENERAL INFORMATION:
;  APPLICANT: Krieg, Arthur M.
;  APPLICANT: Weiner, George
;  TITLE OF INVENTION: Methods and Products for Stimulating the
;  TITLE OF INVENTION: Immune System Using Immunotherapeutic Oligonucleotides and
;  TITLE OF INVENTION: Cytokines
;  FILE REFERENCE: C1039/7026/HCL
;  CURRENT APPLICATION NUMBER: US/09/286,098
;  CURRENT FILING DATE: 1999-04-02
;  EARLIER APPLICATION NUMBER: US 60/080,729
;  EARLIER FILING DATE: 1998-04-03
;  NUMBER OF SEQ ID NOS: 105
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 48
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic Sequence
US-09-286-098-48

  Query Match             100.0%;  Score 20;  DB 4;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 0.17;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGTCGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATGTCGTTCCTGATGCT 20


RESULT 5
US-09-286-098-56
; Sequence 56, Application US/09286098
; Patent No. 6218371
; GENERAL INFORMATION:
;  APPLICANT: Krieg, Arthur M.
;  APPLICANT: Weiner, George
;  TITLE OF INVENTION: Methods and Products for Stimulating the
;  TITLE OF INVENTION: Immune System Using Immunotherapeutic Oligonucleotides and
;  TITLE OF INVENTION: Cytokines
;  FILE REFERENCE: C1039/7026/HCL
;  CURRENT APPLICATION NUMBER: US/09/286,098
;  CURRENT FILING DATE: 1999-04-02
;  EARLIER APPLICATION NUMBER: US 60/080,729
;  EARLIER FILING DATE: 1998-04-03
;  NUMBER OF SEQ ID NOS: 105
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 56
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic Sequence
US-09-286-098-56

  Query Match             100.0%;  Score 20;  DB 4;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 0.17;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGTCGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATGTCGTTCCTGATGCT 20


RESULT 6
US-09-286-098-57
; Sequence 57, Application US/09286098
; Patent No. 6218371
; GENERAL INFORMATION:
;  APPLICANT: Krieg, Arthur M.
;  APPLICANT: Weiner, George
;  TITLE OF INVENTION: Methods and Products for Stimulating the
;  TITLE OF INVENTION: Immune System Using Immunotherapeutic Oligonucleotides and
;  TITLE OF INVENTION: Cytokines
;  FILE REFERENCE: C1039/7026/HCL
;  CURRENT APPLICATION NUMBER: US/09/286,098
;  CURRENT FILING DATE: 1999-04-02
;  EARLIER APPLICATION NUMBER: US 60/080,729
;  EARLIER FILING DATE: 1998-04-03
;  NUMBER OF SEQ ID NOS: 105
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 57
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic Sequence
;   FEATURE:
```

```
;   NAME/KEY: modified_base
;   LOCATION: (8)...(8)
;   OTHER INFORMATION: m5c
US-09-286-098-57

  Query Match            100.0%;  Score 20;  DB 4;  Length 20;
  Best Local Similarity  100.0%;  Pred. No. 0.17;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGTCGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATGTCGTTCCTGATGCT 20


RESULT 7
US-08-960-774-38
; Sequence 38, Application US/08960774
; Patent No. 6239116
;  GENERAL INFORMATION:
;    APPLICANT:  Krieg et al.,
;    TITLE OF INVENTION:  IMMUNOSTIMULATORY NUCLEIC ACID MOLECULES
;    NUMBER OF SEQUENCES:  111
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Fish & Richardson P.C.
;      STREET:  4225 Executive Square, Suite 1400
;      CITY:  La Jolla
;      STATE:  CA
;      COUNTRY:  USA
;      ZIP:  92037
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  ASCII text
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/960,774
;      FILING DATE:  30-October-1997
;      CLASSIFICATION:  514
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  U.S. Serial No. 6239116  08/738,652
;      FILING DATE:  October 30, 1996
;      CLASSIFICATION:  514
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Haile, Lisa A.
;      REGISTRATION NUMBER:  38,347
;      REFERENCE/DOCKET NUMBER:  08918/012001
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  619/678-5070
;      TELEFAX:  619/678-5099
;  INFORMATION FOR SEQ ID NO:  38:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  20 base pairs
;      TYPE:  nucleic acid
;      STRANDEDNESS:  single
;      TOPOLOGY:  linear
;    MOLECULE TYPE:  cDNA
US-08-960-774-38

  Query Match            100.0%;  Score 20;  DB 4;  Length 20;
  Best Local Similarity  100.0%;  Pred. No. 0.17;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGTCGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATGTCGTTCCTGATGCT 20


RESULT 8
US-09-082-649B-71
; Sequence 71, Application US/09082649B
; Patent No. 6339068
; GENERAL INFORMATION:
;  APPLICANT:  Davis, Heather L.
;  APPLICANT:  Krieg, Arthur M.
;  APPLICANT:  Schorr, Joachim
;  APPLICANT:  Wu, Tong
;  TITLE OF INVENTION:  Vectors and Methods for Immunization or
;  TITLE OF INVENTION:  Therapeutic Protocols
;  FILE REFERENCE:  C1039/7009
;  CURRENT APPLICATION NUMBER: US/09/082,649B
;  CURRENT FILING DATE:  1998-05-20
;  PRIOR APPLICATION NUMBER:  US 60/047,233
;  PRIOR FILING DATE:  1997-05-20
;  PRIOR APPLICATION NUMBER:  US 60/047,209
;  PRIOR FILING DATE:  1997-05-20
;  NUMBER OF SEQ ID NOS:  85
;  SOFTWARE:  FastSEQ for Windows Version 3.0
; SEQ ID NO 71
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: synthetic oligonucleotide
US-09-082-649B-71

  Query Match            100.0%;  Score 20;  DB 4;  Length 20;
  Best Local Similarity  100.0%;  Pred. No. 0.17;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGTCGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATGTCGTTCCTGATGCT 20


RESULT 9
US-09-325-193A-49
; Sequence 49, Application US/09325193A
; Patent No. 6406705
; GENERAL INFORMATION:
;  APPLICANT:  Davis, Heather L.
;  APPLICANT:  Schorr, Joachim
;  APPLICANT:  Krieg, Arthur M.
;  TITLE OF INVENTION:  Use of Nucleic Acids Containing
;  TITLE OF INVENTION:  Unmethylated CpG Dinucleotide as an Adjuvant
;  FILE REFERENCE:  C1039/7025/HCL
;  CURRENT APPLICATION NUMBER: US/09/325,193A
;  CURRENT FILING DATE:  1999-06-03
;  PRIOR APPLICATION NUMBER:  US 09/154,614
;  PRIOR FILING DATE:  1998-09-16
;  PRIOR APPLICATION NUMBER:  PCT/US98/04703
;  PRIOR FILING DATE:  1998-03-10
;  PRIOR APPLICATION NUMBER:  US 60/040,376
;  PRIOR FILING DATE:  1997-03-10
;  NUMBER OF SEQ ID NOS:  98
;  SOFTWARE:  FastSEQ for Windows Version 3.0
; SEQ ID NO 49
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic Oligonucleotide
US-09-325-193A-49

  Query Match            100.0%;  Score 20;  DB 4;  Length 20;
  Best Local Similarity  100.0%;  Pred. No. 0.17;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGTCGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATGTCGTTCCTGATGCT 20


RESULT 10
US-09-191-170-43
; Sequence 43, Application US/09191170
; Patent No. 6429199
```

```
; GENERAL INFORMATION:
;  APPLICANT: Krieg, Arthur M.
;  APPLICANT: Hartmann, Gunther
;  TITLE OF INVENTION: Immunostimulatory Nucleic Acid Molecules
;  TITLE OF INVENTION: for Activating Dendritic Cells
;  FILE REFERENCE: C1039/7017
;  CURRENT APPLICATION NUMBER: US/09/191,170
;  CURRENT FILING DATE: 1998-11-13
;  EARLIER APPLICATION NUMBER: US 08/960,774
;  EARLIER FILING DATE: 1997-10-30
;  EARLIER APPLICATION NUMBER: US 08/738,652
;  EARLIER FILING DATE: 1996-10-30
;  EARLIER APPLICATION NUMBER: US 08/386,063
;  EARLIER FILING DATE: 1995-02-07
;  EARLIER APPLICATION NUMBER: US 08/276,358
;  EARLIER FILING DATE: 1994-07-15
;  NUMBER OF SEQ ID NOS: 99
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 43
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: synthetic oligonucleotide
US-09-191-170-43

  Query Match             100.0%;  Score 20;  DB 4;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 0.17;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGTCGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATGTCGTTCCTGATGCT 20


RESULT 11
US-09-191-170-51
; Sequence 51, Application US/09191170
; Patent No. 6429199
; GENERAL INFORMATION:
;  APPLICANT: Krieg, Arthur M.
;  APPLICANT: Hartmann, Gunther
;  TITLE OF INVENTION: Immunostimulatory Nucleic Acid Molecules
;  TITLE OF INVENTION: for Activating Dendritic Cells
;  FILE REFERENCE: C1039/7017
;  CURRENT APPLICATION NUMBER: US/09/191,170
;  CURRENT FILING DATE: 1998-11-13
;  EARLIER APPLICATION NUMBER: US 08/960,774
;  EARLIER FILING DATE: 1997-10-30
;  EARLIER APPLICATION NUMBER: US 08/738,652
;  EARLIER FILING DATE: 1996-10-30
;  EARLIER APPLICATION NUMBER: US 08/386,063
;  EARLIER FILING DATE: 1995-02-07
;  EARLIER APPLICATION NUMBER: US 08/276,358
;  EARLIER FILING DATE: 1994-07-15
;  NUMBER OF SEQ ID NOS: 99
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 51
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: synthetic oligonucleotide
;   FEATURE:
;   NAME/KEY: modified_base
;   LOCATION: (8)...(8)
;   OTHER INFORMATION: m5c
US-09-191-170-51

  Query Match             100.0%;  Score 20;  DB 4;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 0.17;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGTCGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATGTCGTTCCTGATGCT 20


RESULT 12
US-09-030-701-25
; Sequence 25, Application US/09030701B
; Patent No. 6214806
; GENERAL INFORMATION:
;  APPLICANT:  Krieg, Arthur M.
;  APPLICANT:  Schwartz, David A.
;  TITLE OF INVENTION:  USE OF NUCLEIC ACIDS CONTAINING
;  TITLE OF INVENTION:  UNMETHYLATED CpG DINUCLEOTIDE IN THE TREATMENT OF
;  TITLE OF INVENTION:  LPS-ASSOCIATED DISORDERS
;  FILE REFERENCE:  C1039/7011
;  CURRENT APPLICATION NUMBER: US/09/030,701B
;  CURRENT FILING DATE:  1998-02-25
;  PRIOR APPLICATION NUMBER:  60/039,405
;  PRIOR FILING DATE:  1997-02-28
;  NUMBER OF SEQ ID NOS:  65
;  SOFTWARE:  FastSEQ for Windows Version 3.0
; SEQ ID NO 25
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: synthetic oligonucleotide
;   NAME/KEY: misc_feature
;   LOCATION: (8)...(8)
;   OTHER INFORMATION: any nucleotide
US-09-030-701-25

  Query Match             95.0%;  Score 19;  DB 4;  Length 20;
  Best Local Similarity   95.0%;  Pred. No. 0.55;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy      1 TCCATGTCGTTCCTGATGCT 20
          ||||||| ||||||||||||
Db      1 TCCATGTNGTTCCTGATGCT 20


RESULT 13
US-08-960-774-44
; Sequence 44, Application US/08960774
; Patent No. 6239116
;  GENERAL INFORMATION:
;    APPLICANT:  Krieg et al.,
;    TITLE OF INVENTION:  IMMUNOSTIMULATORY NUCLEIC ACID MOLECULES
;    NUMBER OF SEQUENCES:  111
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Fish & Richardson P.C.
;      STREET:  4225 Executive Square, Suite 1400
;      CITY:  La Jolla
;      STATE:  CA
;      COUNTRY:  USA
;      ZIP:  92037
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  ASCII text
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/960,774
;      FILING DATE:  30-October-1997
;      CLASSIFICATION:  514
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  U.S. Serial No. 6239116  08/738,652
;      FILING DATE:  October 30, 1996
;      CLASSIFICATION:  514
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Haile, Lisa A.
;      REGISTRATION NUMBER:  38,347
```

```
;      REFERENCE/DOCKET NUMBER:  08918/012001
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  619/678-5070
;      TELEFAX:  619/678-5099
;  INFORMATION FOR SEQ ID NO:  44:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  20 base pairs
;      TYPE:  nucleic acid
;      STRANDEDNESS:  single
;      TOPOLOGY:  linear
;    MOLECULE TYPE:  cDNA
;    FEATURE:
;      NAME/KEY:  misc_feature
;      LOCATION:  8...8
;      OTHER INFORMATION:  where N at position 8 is 5 methyl cytosine
US-08-960-774-44

  Query Match             95.0%;  Score 19;  DB 4;  Length 20;
  Best Local Similarity   95.0%;  Pred. No. 0.55;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy      1 TCCATGTCGTTCCTGATGCT 20
          ||||||| ||||||||||||
Db      1 TCCATGTNGTTCCTGATGCT 20


RESULT 14
US-09-082-649B-72
; Sequence 72, Application US/09082649B
; Patent No. 6339068
; GENERAL INFORMATION:
;  APPLICANT:  Davis, Heather L.
;  APPLICANT:  Krieg, Arthur M.
;  APPLICANT:  Schorr, Joachim
;  APPLICANT:  Wu, Tong
;  TITLE OF INVENTION:  Vectors and Methods for Immunization or
;  TITLE OF INVENTION:  Therapeutic Protocols
;  FILE REFERENCE:  C1039/7009
;  CURRENT APPLICATION NUMBER: US/09/082,649B
;  CURRENT FILING DATE:  1998-05-20
;  PRIOR APPLICATION NUMBER:  US 60/047,233
;  PRIOR FILING DATE:  1997-05-20
;  PRIOR APPLICATION NUMBER:  US 60/047,209
;  PRIOR FILING DATE:  1997-05-20
;  NUMBER OF SEQ ID NOS:  85
;  SOFTWARE:  FastSEQ for Windows Version 3.0
; SEQ ID NO 72
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: synthetic oligonucleotide
US-09-082-649B-72

  Query Match             95.0%;  Score 19;  DB 4;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 0.55;
  Matches   19;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGTCGTTCCTGATGC 19
          |||||||||||||||||||
Db      1 TCCATGTCGTTCCTGATGC 19


RESULT 15
US-08-436-714-7
; Sequence 7, Application US/08436714
; Patent No. 5602244
;  GENERAL INFORMATION:
;    APPLICANT:  Marvin H. Caruthers et al
;    TITLE OF INVENTION:  Nucleoside and Polynucleotide
;    TITLE OF INVENTION:  Thiophosphoramidite and Phosphorodithioate Compounds and Proce
;    NUMBER OF SEQUENCES:  8
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Yahwak & Associates
;      STREET:  25 Skytop Drive
;      CITY:  Trumbull
;      STATE:  Connecticut
;      COUNTRY:  USA
;      ZIP:  06611
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  floppy disk
;      COMPUTER:  Macintosh
;      OPERATING SYSTEM:  MS-DOS
;      SOFTWARE:  Microsoft Word 4.0
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/436,714
;      FILING DATE:
;      CLASSIFICATION:  536
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  George M. Yahwak
;      REGISTRATION NUMBER:  26,824
;      REFERENCE/DOCKET NUMBER:  CU 311 BIGCIP
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  (203)268-1951
;      TELEFAX:  (203)268-1951
;  INFORMATION FOR SEQ ID NO:  7:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  20 base pairs
;      TYPE:  nucleic acid
;      STRANDEDNESS:  single
;      TOPOLOGY:  linear
;    MOLECULE TYPE:  DNA
US-08-436-714-7

  Query Match             92.0%;  Score 18.4;  DB 1;  Length 20;
  Best Local Similarity   95.0%;  Pred. No. 1.1;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy      1 TCCATGTCGTTCCTGATGCT 20
          ||||||||| ||||||||||
Db      1 TCCATGTCGGTCCTGATGCT 20


Search completed: March  1, 2003, 22:52:59
Job time : 41.5 secs
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GenCore version 5.1.4_p5_4578


OM nucleic - nucleic search, using sw model

Run on: March 1, 2003, 20:25:21 ; Search time 1108.25 Seconds
(without alignments)
292.271 Million cell updates/sec

Title: US-09-818-918-43
Perfect score: 20
Sequence: 1 tccatgtcgttcctgatgct 20

Scoring table: IDENTITY_NUC
Gapop 10.0 , Gapext 1.0

Searched: 16154066 seqs, 8097743376 residues

Total number of hits satisfying chosen parameters: 32308132

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : EST:*
1: em_estba:*
2: em_esthum:*
3: em_estin:*
4: em_estmu:*
5: em_estov:*
6: em_estpl:*
7: em_estro:*
8: em_htc:*
9: gb_est1:*
10: gb_est2:*
11: gb_htc:*
12: gb_est3:*
13: gb_est4:*
14: gb_est5:*
15: em_estfun:*
16: em_estom:*
17: gb_gss:*
18: em_gss_hum:*
19: em_gss_inv:*
20: em_gss_pln:*
21: em_gss_vrt:*
22: em_gss_fun:*
23: em_gss_mam:*
24: em_gss_mus:*
25: em_gss_other:*
26: em_gss_pro:*
27: em_gss_rod:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

| Result No. | | Score | % Query Match | Length | DB | ID | Description |
|---|---|---|---|---|---|---|---|
| c | 1 | 18.4 | 92.0 | 70 | 9 | AA855652 | AA855652 vw70g01.r |
| c | 2 | 18.4 | 92.0 | 97 | 9 | AA082589 | AA082589 zn23g09.r |
| | 3 | 18.4 | 92.0 | 287 | 12 | BF713668 | BF713668 ESTPBL223 |
| c | 4 | 18.4 | 92.0 | 461 | 17 | AZ721917 | AZ721917 RPCI-24-1 |
| c | 5 | 18.4 | 92.0 | 484 | 13 | BI899835 | BI899835 ib66d01.y |
| c | 6 | 18.4 | 92.0 | 556 | 17 | AZ752416 | AZ752416 RPCI-24-6 |
| | 7 | 18.4 | 92.0 | 571 | 17 | AZ023370 | AZ023370 RPCI-23-3 |
| c | 8 | 18.4 | 92.0 | 578 | 14 | BM730295 | BM730295 ih62g03.y |
| | 9 | 18.4 | 92.0 | 592 | 17 | AZ985535 | AZ985535 2M0267K19 |
| c | 10 | 18.4 | 92.0 | 608 | 13 | BI100477 | BI100477 602886587 |
| c | 11 | 18.4 | 92.0 | 630 | 13 | BI330822 | BI330822 602981204 |
| c | 12 | 18.4 | 92.0 | 636 | 10 | BB654216 | BB654216 BB654216 |
| c | 13 | 18.4 | 92.0 | 637 | 12 | BG863609 | BG863609 602796816 |
| c | 14 | 18.4 | 92.0 | 638 | 13 | BI329902 | BI329902 602980033 |
| c | 15 | 18.4 | 92.0 | 642 | 12 | BF299738 | BF299738 602029243 |
| c | 16 | 18.4 | 92.0 | 646 | 10 | BE368574 | BE368574 601220573 |
| c | 17 | 18.4 | 92.0 | 669 | 10 | BE290326 | BE290326 601089294 |
| c | 18 | 18.4 | 92.0 | 679 | 17 | AZ837234 | AZ837234 2M0132J20 |
| c | 19 | 18.4 | 92.0 | 684 | 12 | BG862940 | BG862940 602797636 |
| c | 20 | 18.4 | 92.0 | 685 | 13 | BG974078 | BG974078 602843770 |
| c | 21 | 18.4 | 92.0 | 700 | 14 | BM944939 | BM944939 UI-M-EH0p |
| c | 22 | 18.4 | 92.0 | 727 | 17 | AZ915252 | AZ915252 RPCI-24-1 |
| c | 23 | 18.4 | 92.0 | 730 | 13 | BI904426 | BI904426 603168092 |
| | 24 | 18.4 | 92.0 | 737 | 17 | AZ901548 | AZ901548 RPCI-24-1 |
| c | 25 | 18.4 | 92.0 | 738 | 12 | BG862224 | BG862224 602795825 |
| c | 26 | 18.4 | 92.0 | 741 | 17 | BH057351 | BH057351 RPCI-24-3 |
| c | 27 | 18.4 | 92.0 | 743 | 13 | BI695125 | BI695125 603345256 |
| c | 28 | 18.4 | 92.0 | 746 | 13 | BI147210 | BI147210 602913118 |
| c | 29 | 18.4 | 92.0 | 756 | 13 | BG974408 | BG974408 602844181 |
| c | 30 | 18.4 | 92.0 | 767 | 12 | BG298613 | BG298613 602396808 |
| c | 31 | 18.4 | 92.0 | 768 | 13 | BG969699 | BG969699 602837468 |
| c | 32 | 18.4 | 92.0 | 774 | 13 | BG916385 | BG916385 602813946 |
| c | 33 | 18.4 | 92.0 | 778 | 17 | BH032359 | BH032359 RPCI-24-2 |
| c | 34 | 18.4 | 92.0 | 783 | 13 | BI657388 | BI657388 603283494 |
| c | 35 | 18.4 | 92.0 | 795 | 12 | BF780666 | BF780666 602104131 |
| c | 36 | 18.4 | 92.0 | 797 | 12 | BF385365 | BF385365 602047101 |
| c | 37 | 18.4 | 92.0 | 797 | 13 | BI658696 | BI658696 603283655 |
| c | 38 | 18.4 | 92.0 | 801 | 12 | BF783184 | BF783184 602109214 |
| c | 39 | 18.4 | 92.0 | 806 | 13 | BI101616 | BI101616 602887427 |
| c | 40 | 18.4 | 92.0 | 809 | 12 | BF539247 | BF539247 602054715 |
| c | 41 | 18.4 | 92.0 | 811 | 17 | AZ735141 | AZ735141 RPCI-24-7 |
| c | 42 | 18.4 | 92.0 | 816 | 13 | BI328612 | BI328612 602984524 |
| c | 43 | 18.4 | 92.0 | 819 | 13 | BI657815 | BI657815 603284621 |
| c | 44 | 18.4 | 92.0 | 820 | 13 | BI219515 | BI219515 602936588 |
| c | 45 | 18.4 | 92.0 | 822 | 13 | BI659988 | BI659988 603302278 |

ALIGNMENTS

RESULT 1
AA855652/c
LOCUS AA855652 70 bp mRNA linear EST 06-MAR-1998
DEFINITION vw70g01.r1 Stratagene mouse heart (#937316) Mus musculus cDNA clone IMAGE:1260336 5' similar to gb:M11301 Mouse (MOUSE);, mRNA sequence.
ACCESSION AA855652
VERSION AA855652.1 GI:2943190
KEYWORDS EST.
SOURCE house mouse.
ORGANISM Mus musculus
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
REFERENCE 1 (bases 1 to 70)
AUTHORS Marra,M., Hillier,L., Allen,M., Bowles,M., Dietrich,N., Dubuque,T., Geisel,S., Kucaba,T., Lacy,M., Le,M., Martin,J., Morris,M., Schellenberg,K., Steptoe,M., Tan,F., Underwood,K., Moore,B., Theising,B., Wylie,T., Lennon,G., Soares,B., Wilson,R. and Waterston,R.
TITLE The WashU-HHMI Mouse EST Project
JOURNAL Unpublished (1996)
COMMENT Contact: Marra M/Mouse EST Project
WashU-HHMI Mouse EST Project
Washington University School of MedicineP
4444 Forest Park Parkway, Box 8501, St. Louis, MO 63108
Tel: 314 286 1800
Fax: 314 286 1810
Email: mouseest@watson.wustl.edu
This clone is available royalty-free through LLNL ; contact the

```
          IMAGE Consortium (info@image.llnl.gov) for further information.
          MGI:662888
          Seq primer: -28m13 rev1 ET from Amersham
          High quality sequence stop: 19.
FEATURES             Location/Qualifiers
     source          1. .70
                     /organism="Mus musculus"
                     /strain="NIH Swiss"
                     /db_xref="taxon:10090"
                     /clone="IMAGE:1260336"
                     /clone_lib="Stratagene mouse heart (#937316)"
                     /sex="pooled"
                     /tissue_type="heart"
                     /dev_stage="13 day embryos"
                     /lab_host="SOLR (kanamycin resistant)"
                     /note="Organ: heart; Vector: pBluescript SK-; Site_1:
                     EcoRI; Site_2: XhoI; Cloned unidirectionally.  Primer:
                     Oligo dT. 93 pooled NIH/Swiss 13 day embryo hearts.
                     Average insert size: 1.0 kb; Uni-ZAP XR Vector; ~5'
                     adaptor sequence: 5' GAATTCGGCACGAG 3' ~3' adaptor
                     sequence: 5' CTCGAGTTTTTTTTTTTTTTTT 3'"
BASE COUNT       20 a     22 c     17 g     11 t
ORIGIN

  Query Match             92.0%;  Score 18.4;  DB 9;  Length 70;
  Best Local Similarity   95.0%;  Pred. No. 2e+02;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy       1 TCCATGTCGTTCCTGATGCT 20
           ||||||||| ||||||||||
Db      36 TCCATGTCGGTCCTGATGCT 17


RESULT 2
AA082589/c
LOCUS       AA082589                 97 bp    mRNA    linear   EST 23-DEC-1997
DEFINITION  zn23g09.r1 Stratagene neuroepithelium NT2RAMI 937234 Homo sapiens
            cDNA clone IMAGE:548320 5' similar to TR:G387484 G387484 POL
            PROTEIN ;, mRNA sequence.
ACCESSION   AA082589
VERSION     AA082589.1  GI:1624648
KEYWORDS    EST.
SOURCE      human.
  ORGANISM  Homo sapiens
            Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
            Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
REFERENCE   1  (bases 1 to 97)
  AUTHORS   Hillier,L., Lennon,G., Becker,M., Bonaldo,M.F., Chiapelli,B.,
            Chissoe,S., Dietrich,N., DuBuque,T., Favello,A., Gish,W., Hawkins
            ,M., Hultman,M., Kucaba,T., Lacy,M., Le,M., Le,N., Mardis,E., Moore
            ,B., Morris,M., Parsons,J., Prange,C., Rifkin,L., Rohlfing,T.,
            Schellenberg,K., Soares,M.B., Tan,F., Thierry-Meg,J., Trevaskis,E.,
            Underwood,K., Wohldmann,P., Waterston,R., Wilson,R. and Marra,M.
  TITLE     Generation and analysis of 280,000 human expressed sequence tags
  JOURNAL   Genome Res. 6 (9), 807-828 (1996)
  MEDLINE   97044478
COMMENT     Contact: Wilson RK
            Washington University School of Medicine
            4444 Forest Park Parkway, Box 8501, St. Louis, MO 63108
            Tel: 314 286 1800
            Fax: 314 286 1810
            Email: est@watson.wustl.edu
            WARNING: There is evidence that suggests that the 384-well parent
            plate of this clone contains both human and mouse derived clones.
            Thus, the origin of this clone is uncertain. This caution should be
            kept in mind should you use this clone.

            This clone is available royalty-free through LLNL ; contact the
            IMAGE Consortium (info@image.llnl.gov) for further information.
            Trace considered overall poor quality
            Possible reversed clone: similarity on wrong strand
            Seq primer: -28M13 rev2 from Amersham
            High quality sequence stop: 1.
FEATURES             Location/Qualifiers
     source          1. .97
                     /organism="Homo sapiens"
                     /db_xref="GDB:3926836"
                     /db_xref="taxon:9606"
                     /clone="IMAGE:548320"
                     /clone_lib="Stratagene neuroepithelium NT2RAMI 937234"
                     /dev_stage="Ntera-2/RA+MI neuroepithelial cells"
                     /lab_host="SOLR (kanamycin resistant)"
                     /note="Vector: pBluescript SK-; Site_1: EcoRI; Site_2:
                     XhoI; Cloned unidirectionally.  Primer: Oligo dT. NT2
                     (Ntera-2/c1.D1)  precursor cells induced with Retinoic
                     Acid for 1 week, followed by 3 weeks in mitotic inhibitors
                     (Replate #2). Average insert size: 1.1 kb; Uni-ZAP XR
                     Vector; ~5' adaptor sequence: 5' GAATTCGGCACGAG 3' ~3'
                     adaptor sequence: 5' CTCGAGTTTTTTTTTTTTTTTT 3'"
BASE COUNT       24 a     31 c     23 g     11 t      8 others
ORIGIN

  Query Match             92.0%;  Score 18.4;  DB 9;  Length 97;
  Best Local Similarity   95.0%;  Pred. No. 2.2e+02;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy       1 TCCATGTCGTTCCTGATGCT 20
           ||||||||| ||||||||||
Db      44 TCCATGTCGGTCCTGATGCT 25


RESULT 3
BF713668
LOCUS       BF713668                 287 bp    mRNA    linear   EST 31-DEC-2001
DEFINITION  ESTPBL223 differential display RT-PCR clones Sus scrofa cDNA clone
            BL223, mRNA sequence.
ACCESSION   BF713668
VERSION     BF713668.1  GI:18002858
KEYWORDS    EST.
SOURCE      pig.
  ORGANISM  Sus scrofa
            Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
            Mammalia; Eutheria; Cetartiodactyla; Suina; Suidae; Sus.
REFERENCE   1  (bases 1 to 287)
  AUTHORS   Ponsuksili,S., Wimmers,K. and Schellander,K.
  TITLE     Identification of porcine liver ESTs by differential display RT-PCR
  JOURNAL   Unpublished (2001)
COMMENT     Contact: Ponsuksili S
            Institute of Animal Breeding Science
            University of Bonn
            Endenicher Allee 15, Bonn 53115, Germany
            Seq primer: T7 SP6
            High quality sequence stop: 287
            POLYA=No.
FEATURES             Location/Qualifiers
     source          1. .287
                     /organism="Sus scrofa"
                     /db_xref="taxon:9823"
                     /clone="BL223"
                     /clone_lib="differential display RT-PCR clones"
                     /note="Organ: liver; cDNA fragments obtained from
                     differential display RT-PCR banding patterns were cloned
                     into pGEM"
BASE COUNT       74 a     64 c     63 g     86 t
ORIGIN

  Query Match             92.0%;  Score 18.4;  DB 12;  Length 287;
  Best Local Similarity   95.0%;  Pred. No. 3.1e+02;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy       1 TCCATGTCGTTCCTGATGCT 20
           |||||| ||||||||||||||
Db      14 TCCATGACGTTCCTGATGCT 33


RESULT 4
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AZ721917/c
LOCUS       AZ721917                461 bp    DNA     linear   GSS 24-JAN-2001
DEFINITION  RPCI-24-140F5.TV RPCI-24 Mus musculus genomic clone RPCI-24-140F5,
            DNA sequence.
ACCESSION   AZ721917
VERSION     AZ721917.1  GI:12465080
KEYWORDS    GSS.
SOURCE      house mouse.
  ORGANISM  Mus musculus
            Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
            Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
REFERENCE   1  (bases 1 to 461)
  AUTHORS   Zhao,S., Nierman,W., Malek,J., Shatsman,S., Akinret,B., Levins,M.,
            Tsegaye,G., Geer,K., Krol,M., Shvartsbeyn,A., Gebregeorgis,E.,
            Russell,D., de Jong,P. and Fraser,C.M.
  TITLE     Mouse BAC End Sequences from Library RPCI-24
  JOURNAL   Unpublished (1999)
COMMENT     Contact: Shaying Zhao
            Department of Eukaryotic Genomics
            The Institute for Genomic Research
            9712 Medical Center Dr., Rockville, MD 20850, USA
            Tel: 301 838 0200
            Fax: 301 838 0208
            Email: szhao@tigr.org
            Clones are derived from the mouse BAC library RPCI-24. For BAC
            library availability, please contact Pieter de Jong
            (pdejong@mail.cho.org). Clones may be purchased from BACPAC
            Resources (http://www.chori.org/bacpac/orderingframe.htm). BAC end
            page: http://ww .tigr.org/tdb/bac_ends/mouse/bac_end_intro.html
            Plate: 140  row: F  column: 5
            Seq primer: T7
            Class: BAC ends.
FEATURES             Location/Qualifiers
     source          1. .461
                     /organism="Mus musculus"
                     /strain="C57BL/6J"
                     /db_xref="taxon:10090"
                     /clone="RPCI-24-140F5"
                     /clone_lib="RPCI-24"
                     /sex="Male"
                     /cell_type="Spleen/Brain"
                     /note="Vector: pTARBAC1; Site_1: BamH1; Site_2: BamH1;
                     RPCI-24 Mouse BAC Library produced by Pieter de Jong. The
                     library was  cloned in the pTARBAC1 cloning vector at the
                     BamH1 sites using MboI  partially digested male C57BL/6J
                     DNA."
BASE COUNT      120 a    145 c    113 g     83 t
ORIGIN

  Query Match             92.0%;  Score 18.4;  DB 17;  Length 461;
  Best Local Similarity   95.0%;  Pred. No. 3.6e+02;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy      1 TCCATGTCGTTCCTGATGCT 20
          |||||||||  ||||||||||
Db    268 TCCATGTCGGTCCTGATGCT 249


RESULT 5
BI899835/c
LOCUS       BI899835                484 bp    mRNA    linear   EST 12-MAR-2002
DEFINITION  ib66d01.y1 Amplified Melton Mouse Islets 1 MIS1-A Mus musculus cDNA
            clone IMAGE:5651736 5' similar to SW:POL1_MOUSE P10400
            RETROVIRUS-RELATED POL POLYPROTEIN [CONTAINS: REVERSE TRANSCRIPTASE
            ;, mRNA sequence.
ACCESSION   BI899835
VERSION     BI899835.1  GI:16187789
KEYWORDS    EST.
SOURCE      house mouse.
  ORGANISM  Mus musculus
            Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
            Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
REFERENCE   1  (bases 1 to 484)
  AUTHORS   Melton,D., Brown,J., Kenty,G., Permutt,A., Lee,C., Kaestner,K.,
            Lemishka,I., Sceance,M., Brestelli,J., Gradwohl,G., Clifton,S.,
            Hillier,L., Marra,M., Pape,D., Wylie,T., Martin,J., Blistain,A.,
            Schmitt,A., Theising,B., Ritter,E., Ronko,I., Bennett,J., Cardenas
            ,M., Gibbons,M., McCann,R., Cole,R., Tsagareishvili,R., Williams,T.
            , Jackson,Y. and Bowers,Y.
  TITLE     Endocrine Pancreas Consortium
  JOURNAL   Unpublished (2000)
COMMENT     Contact: Douglas Melton, Klaus H. Kaestner, & Hiroshi Inoue
            Endocrine Pancreas Consortium
            Harvard University, Howard Hughes Medical Institute
            Dept of Molecular and Cellular Biology, 7 Divinity Ave, Cambridge,
            MA 02138
            Tel: 617-495-1812
            Fax: 617-495-8557
            Email: dmelton@biohp.harvard.edu
            Library was constructed by Dr. Douglas Melton DNA sequencing by:
            Washington University Genome Sequencing Center For information on
            obtaining a clone please contact: Juliana Brown
            (brown@fas.harvard.edu)
            MGI:1938062 This sequence now available from the IMAGE consortium,
            for clone orders contact: info@image.llnl.gov
            Seq primer: -40RP from Gibco
            High quality sequence stop: 431.
FEATURES             Location/Qualifiers
     source          1. .484
                     /organism="Mus musculus"
                     /strain="ICR"
                     /db_xref="taxon:10090"
                     /clone="IMAGE:5651736"
                     /clone_lib="Amplified Melton Mouse Islets 1 MIS1-A"
                     /sex="Male"
                     /tissue_type="Islets of Langerhans"
                     /dev_stage="Adult"
                     /lab_host="DH10B"
                     /note="Organ: Pancreas; Vector: pSPORT1; Site_1: Not 1;
                     Site_2: Sal 1; Library constructed using SuperScript
                     Plasmid Library kit (Life  Technologies). cDNA made by
                     oligo-dT priming. Size-selected by column  fractionation;
                     average insert size 0.91 kb. Amplified once on solid
                     support. cDNA Library Preparation: Guolin Chen. "
BASE COUNT      128 a    156 c    117 g     83 t
ORIGIN

  Query Match             92.0%;  Score 18.4;  DB 13;  Length 484;
  Best Local Similarity   95.0%;  Pred. No. 3.6e+02;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy      1 TCCATGTCGTTCCTGATGCT 20
          |||||||||  ||||||||||
Db    295 TCCATGTCGGTCCTGATGCT 276


RESULT 6
AZ752416/c
LOCUS       AZ752416                556 bp    DNA     linear   GSS 25-JAN-2001
DEFINITION  RPCI-24-66H16.TJ RPCI-24 Mus musculus genomic clone RPCI-24-66H16,
            DNA sequence.
ACCESSION   AZ752416
VERSION     AZ752416.1  GI:12537575
KEYWORDS    GSS.
SOURCE      house mouse.
  ORGANISM  Mus musculus
            Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
            Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
REFERENCE   1  (bases 1 to 556)
  AUTHORS   Zhao,S., Nierman,W., Malek,J., Shatsman,S., Akinret,B., Levins,M.,
            Tsegaye,G., Geer,K., Krol,M., Shvartsbeyn,A., Gebregeorgis,E.,
            Russell,D., de Jong,P. and Fraser,C.M.
  TITLE     Mouse BAC End Sequences from Library RPCI-24
  JOURNAL   Unpublished (1999)
COMMENT     Other_GSSs: RPCI-24-66H16.TV
            Contact: Shaying Zhao
```

```
            Department of Eukaryotic Genomics
            The Institute for Genomic Research
            9712 Medical Center Dr., Rockville, MD 20850, USA
            Tel: 301 838 0200
            Fax: 301 838 0208
            Email: szhao@tigr.org
            Clones are derived from the mouse BAC library RPCI-24. For BAC
            library availability, please contact Pieter de Jong
            (pdejong@mail.cho.org). Clones may be purchased from BACPAC
            Resources (http://www.chori.org/bacpac/orderingframe.htm). BAC end
            page: http://ww .tigr.org/tdb/bac_ends/mouse/bac_end_intro.html
            Plate: 66  row: H  column: 16
            Seq primer: SP6
            Class: BAC ends.
FEATURES              Location/Qualifiers
     source           1. .556
                      /organism="Mus musculus"
                      /strain="C57BL/6J"
                      /db_xref="taxon:10090"
                      /clone="RPCI-24-66H16"
                      /clone_lib="RPCI-24"
                      /sex="Male"
                      /cell_type="Spleen/Brain"
                      /note="Vector: pTARBAC1; Site_1: BamH1; Site_2: BamH1;
                      RPCI-24 Mouse BAC Library produced by Pieter de Jong. The
                      library was  cloned in the pTARBAC1 cloning vector at the
                      BamH1 sites using MboI  partially digested male C57BL/6J
                      DNA."
BASE COUNT      149 a    143 c    143 g    121 t
ORIGIN

  Query Match             92.0%;  Score 18.4;  DB 17;  Length 556;
  Best Local Similarity   95.0%;  Pred. No. 3.8e+02;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy       1 TCCATGTCGTTCCTGATGCT 20
           ||||||||| ||||||||||
Db      45 TCCATGTCGGTCCTGATGCT 26


RESULT 7
AZ023370
LOCUS       AZ023370                 571 bp    DNA     linear   GSS 25-FEB-2000
DEFINITION  RPCI-23-301L21.TV RPCI-23 Mus musculus genomic clone RPCI-23-301L21
            , DNA sequence.
ACCESSION   AZ023370
VERSION     AZ023370.1  GI:7098754
KEYWORDS    GSS.
SOURCE      house mouse.
  ORGANISM  Mus musculus
            Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
            Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
REFERENCE   1  (bases 1 to 571)
  AUTHORS   Zhao,S., Nierman,W., Feldblyum,T., Malek,J., Shatsman,S., Akinret
            ,B., Levins,M., Mcgann,S., Tsegaye,G., Geer,K., Krol,M., de Jong,P.
            and Fraser,C.M.
  TITLE     Mouse BAC End Sequences from Library RPCI-23
  JOURNAL   Unpublished (1999)
COMMENT     Other_GSSs: RPCI-23-301L21.TJ
            Contact: Shaying Zhao
            Department of Eukaryotic Genomics
            The Institute for Genomic Research
            9712 Medical Center Dr., Rockville, MD 20850, USA
            Tel: 301 838 0200
            Fax: 301 838 0208
            Email: szhao@tigr.org
            Clones are derived from the mouse BAC library RPCI-23. For BAC
            library availability, please contact Pieter de Jong
            (pieter@dejong.med.buffalo.edu). Clones may be purchased from
            BACPAC Resources (http://bacpac.med.buffalo.edu/orderingframe.htm)
            or from Resea ch Genetics (info@resgen.com). BAC end page:
            http://www.tigr.org/tdb/bac_ends/mouse/bac_end_intro.html
            Plate: 301  row: L  column: 21
            Seq primer: T7
            Class: BAC ends.
FEATURES              Location/Qualifiers
     source           1. .571
                      /organism="Mus musculus"
                      /strain="C57BL/6J"
                      /db_xref="taxon:10090"
                      /clone="RPCI-23-301L21"
                      /clone_lib="RPCI-23"
                      /sex="Female"
                      /lab_host="DH10B"
                      /note="Organ: Kidney/Brain; Vector: pBACe3.6; Site_1:
                      EcoRI; Site_2: EcoRI; Female C57BL/6J mouse kidney and/or
                      brain genomic DNA was isolated and  partially digested
                      with a combination of EcoRI and EcoRI Methylase.   Size
                      selected DNA was cloned into the pBACe3.6 vector at the
                      EcoRI  sites.  The ligation products were transformed into
                      DH10B  electrocompetent cells (BRL Life Technologies).  "
BASE COUNT      119 a    153 c    147 g    150 t      2 others
ORIGIN

  Query Match             92.0%;  Score 18.4;  DB 17;  Length 571;
  Best Local Similarity   95.0%;  Pred. No. 3.8e+02;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy       1 TCCATGTCGTTCCTGATGCT 20
           ||||||||| ||||||||||
Db     535 TCCATGTCGGTCCTGATGCT 554


RESULT 8
BM730295/c
LOCUS       BM730295                 578 bp    mRNA    linear   EST 12-MAR-2002
DEFINITION  ih62g03.y1 Melton Mouse E16 5 Pancreas Library 2 M16B2 Mus musculus
            cDNA clone IMAGE:5681092 5' similar to SW:POL_MLVRK P31795 POL
            POLYPROTEIN [CONTAINS: PROTEASE ;, mRNA sequence.
ACCESSION   BM730295
VERSION     BM730295.1  GI:19051628
KEYWORDS    EST.
SOURCE      house mouse.
  ORGANISM  Mus musculus
            Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
            Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
REFERENCE   1  (bases 1 to 578)
  AUTHORS   Melton,D., Brown,J., Kenty,G., Permutt,A., Lee,C., Kaestner,K.,
            Lemishka,I., Scearce,M., Brestelli,J., Gradwohl,G., Clifton,S.,
            Hillier,L., Marra,M., Pape,D., Wylie,T., Martin,J., Blistain,A.,
            Schmitt,A., Theising,B., Ritter,E., Ronko,I., Bennett,J., Cardenas
            ,M., Gibbons,M., McCann,R., Cole,R., Tsagareishvili,R., Williams,T.
            , Jackson,Y. and Bowers,Y.
  TITLE     Endocrine Pancreas Consortium
  JOURNAL   Unpublished (2000)
COMMENT     Other_ESTs: ih62g03.x1
            Contact: Douglas Melton, Klaus H. Kaestner, & Hiroshi Inoue
            Endocrine Pancreas Consortium
            Harvard University, Howard Hughes Medical Institute
            Dept of Molecular and Cellular Biology, 7 Divinity Ave, Cambridge,
            MA 02138
            Tel: 617-495-1812
            Fax: 617-495-8557
            Email: dmelton@biohp.harvard.edu
            Library was constructed by Dr. Douglas Melton DNA sequencing by:
            Washington University Genome Sequencing Center For information on
            obtaining a clone please contact: Juliana Brown
            (brown@fas.harvard.edu)
            MGI:1958970 This sequence now available from the IMAGE consortium,
            for clone orders contact: info@image.llnl.gov
            Seq primer: -40RP from Gibco
            High quality sequence stop: 432.
FEATURES              Location/Qualifiers
     source           1. .578
                      /organism="Mus musculus"
                      /strain="ICR"
```

/db_xref="taxon:10090"
/clone="IMAGE:5681092"
/clone_lib="Melton Mouse E16 5 Pancreas Library 2 M16B2"
/sex="Both"
/tissue_type="Total pancreas"
/dev_stage="Embryonic day 16.5"
/lab_host="TOP10"
/note="Organ: Pancreas; Vector: pBluescript II SK; Site_1: NotI; Site_2: SalI; Library constructed using SuperScript Plasmid Library kit (Life Technologies). cDNA made by oligo-dT priming.Size-selected by column fractionation; average insert size 1.06kb. Primary library, unamplified."

BASE COUNT 145 a 193 c 131 g 109 t
ORIGIN

Query Match 92.0%; Score 18.4; DB 14; Length 578;
Best Local Similarity 95.0%; Pred. No. 3.8e+02;
Matches 19; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

Qy 1 TCCATGTCGTTCCTGATGCT 20
||||||||| ||||||||||
Db 474 TCCATGTCGGTCCTGATGCT 455

RESULT 9
AZ985535
LOCUS AZ985535 592 bp DNA linear GSS 27-APR-2001
DEFINITION 2M0267K19F Mouse 10kb plasmid UUGC2M library Mus musculus genomic clone UUGC2M0267K19 F, DNA sequence.
ACCESSION AZ985535
VERSION AZ985535.1 GI:13856762
KEYWORDS GSS.
SOURCE house mouse.
ORGANISM Mus musculus
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
REFERENCE 1 (bases 1 to 592)
AUTHORS Dunn,D., Aoyagi,A., Barber,M., Beacorn,T., Duval,B., Hamil,C., Islam,H., Longacre,S., Mahmoud,M., Meenen,E., Pedersen,T., Reilly,M., Rose,M., Rose,R., Stokes,R., Tingey,A., von Niederhausern,A. and Wright,D.,Weiss,R.
TITLE Mouse whole genome scaffolding with paired end reads from 10kb plasmid inserts
JOURNAL Unpublished (2000)
COMMENT Contact: Robert B. Weiss
University of Utah Genome Center
University of Utah
Rm. 308, Biomedical Polymers Research Bldg., 20 S. 2030 E., SLC, UT 84112, USA
Tel: 801 585 5606
Fax: 801 585 7177
Email: ddunn@genetics.utah.edu
Insert Length: 10000 Std Error: 0.00
Plate: 0267 row: K column: 19
Seq primer: CGTTGTAAAACGACGGCCAGT
Class: plasmid ends
High quality sequence stop: 592.
FEATURES Location/Qualifiers
source 1. .592
/organism="Mus musculus"
/strain="C57BL/6J"
/db_xref="taxon:10090"
/clone="UUGC2M0267K19"
/clone_lib="Mouse 10kb plasmid UUGC2M library"
/sex="Female"
/lab_host="E. coli strain XL10-Gold, T1-resistant, F-"
/note="Vector: PWD42nv; Purified genomic DNA from M. musculus C57BL/6J (female) was obtained from the Jackson Laboratory Mouse DNA Resource (http://www.jax.org/resources/documents/dnares/). The DNA was hydrodynamically sheared by repeated passage through a 0.005 inch orifice at constant velocity. The sheared DNA was blunt end-repaired with T4 DNA polymerase and T4 polynucleotide kinase. Adaptor oligonucleotides were ligated to the blunt ends in high molar excess. The adaptored DNA was purified and size-selected for a 9.5 to 10.5 kb range using preparative agarose gel electrophoresis. Vector DNA was prepared from a derivative of pWD42 (gi|4732114|gb|AF129072.1), a copy-number inducible derivative of plasmid R1. The vector was ligated with adaptors complementary to the insert adaptors and purified. The sheared, adaptored mouse DNA was annealed to adaptored vector DNA, and transformed into chemically-competent E. coli XL10-Gold (Stratagene) cells and selected for ampicillin resistance."

BASE COUNT 123 a 156 c 152 g 161 t
ORIGIN

Query Match 92.0%; Score 18.4; DB 17; Length 592;
Best Local Similarity 95.0%; Pred. No. 3.8e+02;
Matches 19; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

Qy 1 TCCATGTCGTTCCTGATGCT 20
||||||||| ||||||||||
Db 501 TCCATGTCGGTCCTGATGCT 520

RESULT 10
BI100477/c
LOCUS BI100477 608 bp mRNA linear EST 26-JUN-2001
DEFINITION 602886587F1 NCI_CGAP_Kid14 Mus musculus cDNA clone IMAGE:5042108 5', mRNA sequence.
ACCESSION BI100477
VERSION BI100477.1 GI:14551370
KEYWORDS EST.
SOURCE house mouse.
ORGANISM Mus musculus
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
REFERENCE 1 (bases 1 to 608)
AUTHORS NIH-MGC http://mgc.nci.nih.gov/.
TITLE National Institutes of Health, Mammalian Gene Collection (MGC)
JOURNAL Unpublished (1999)
COMMENT Contact: Robert Strausberg, Ph.D.
Email: cgapbs-r@mail.nih.gov
Tissue Procurement: Jeffrey E. Green, M.D.
cDNA Library Preparation: Life Technologies, Inc.
cDNA Library Arrayed by: The I.M.A.G.E. Consortium (LLNL)
DNA Sequencing by: Incyte Genomics, Inc.
Clone distribution: MGC clone distribution information can be found through the I.M.A.G.E. Consortium/LLNL at:
http://image.llnl.gov
Plate: LLAM11115 row: m column: 21
High quality sequence stop: 608.
FEATURES Location/Qualifiers
source 1. .608
/organism="Mus musculus"
/strain="FVB/N"
/db_xref="taxon:10090"
/clone="IMAGE:5042108"
/clone_lib="NCI_CGAP_Kid14"
/lab_host="DH10B (T1 phage-resistant)"
/note="Organ: kidney; Vector: pCMV-SPORT6; Site_1: NotI; Site_2: SalI; Cloned unidirectionally. Primer: Oligo dT. Average insert size 1.75 kb. Constructed by Life Technologies. Note: this is a NCI_CGAP Library. |"

BASE COUNT 145 a 202 c 152 g 109 t
ORIGIN

Query Match 92.0%; Score 18.4; DB 13; Length 608;
Best Local Similarity 95.0%; Pred. No. 3.9e+02;
Matches 19; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

Qy 1 TCCATGTCGTTCCTGATGCT 20
||||||||| ||||||||||

```
Db    427 TCCATGTCGGTCCTGATGCT 408


RESULT 11
BI330822/c
LOCUS       BI330822                630 bp    mRNA    linear   EST 30-JUL-2001
DEFINITION  602981204F1 NCI_CGAP_Li9 Mus musculus cDNA clone IMAGE:5134105 5',
            mRNA sequence.
ACCESSION   BI330822
VERSION     BI330822.1  GI:15015479
KEYWORDS    EST.
SOURCE      house mouse.
  ORGANISM  Mus musculus
            Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
            Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
REFERENCE   1  (bases 1 to 630)
  AUTHORS   NIH-MGC http://mgc.nci.nih.gov/.
  TITLE     National Institutes of Health, Mammalian Gene Collection (MGC)
  JOURNAL   Unpublished (1999)
COMMENT     Contact: Robert Strausberg, Ph.D.
            Email: cgapbs-r@mail.nih.gov
            Tissue Procurement: Jeffrey E. Green, M.D.
             cDNA Library Preparation: Life Technologies, Inc.
             cDNA Library Arrayed by: The I.M.A.G.E. Consortium (LLNL)
             DNA Sequencing by: Incyte Genomics, Inc.
             Clone distribution: MGC clone distribution information can be
            found through the I.M.A.G.E. Consortium/LLNL at:
            http://image.llnl.gov
            Plate: LLAM11329  row: g  column: 02
            High quality sequence stop: 630.
FEATURES             Location/Qualifiers
     source          1. .630
                     /organism="Mus musculus"
                     /strain="FVB/N"
                     /db_xref="taxon:10090"
                     /clone="IMAGE:5134105"
                     /clone_lib="NCI_CGAP_Li9"
                     /lab_host="DH10B (T1 phage-resistant)"
                     /note="Organ: liver; Vector: pCMV-SPORT6; Site_1: NotI;
                     Site_2: SalI; Cloned unidirectionally. Primer: Oligo dT.
                     Average insert size 1.9 kb. Constructed by Life
                     Technologies. Note: this is a NCI_CGAP Library."
BASE COUNT      151 a    204 c    156 g    119 t
ORIGIN

  Query Match             92.0%;  Score 18.4;  DB 13;  Length 630;
  Best Local Similarity   95.0%;  Pred. No. 3.9e+02;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy      1 TCCATGTCGTTCCTGATGCT 20
          ||||||||| ||||||||||
Db    449 TCCATGTCGGTCCTGATGCT 430


RESULT 12
BB654216/c
LOCUS       BB654216                636 bp    mRNA    linear   EST 26-OCT-2001
DEFINITION  BB654216 RIKEN full-length enriched, 2 days neonate thymus thymic
            cells Mus musculus cDNA clone C920004C08 5', mRNA sequence.
ACCESSION   BB654216
VERSION     BB654216.1  GI:16488044
KEYWORDS    EST.
SOURCE      house mouse.
  ORGANISM  Mus musculus
            Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
            Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
REFERENCE   1  (bases 1 to 636)
  AUTHORS   Arakawa,T., Carninci,P., Fukuda,S., Furuno,M., Hanagaki,T., Hara,A.
            , Hiramoto,K., Hori,F., Ishii,Y., Ito,M., Kawai,J., Konno,H., Kouda
            ,M., Koya,S., Matsuyama,T., Miyazaki,A., Nomura,K., Ohno,M.,
            Okazaki,Y., Okido,T., Saito,R., Sakai,C., Sakai,K., Sano,H., Sasaki
            ,D., Shibata,K., Shinagawa,A., Shiraki,T., Sogabe,Y., Suzuki,H.,
            Tagami,M., Tagawa,A., Takahashi,F., Takeda,Y., Tanaka,T., Toya,T.,
            Muramatsu,M. and Hayashizaki,Y.
  TITLE     RIKEN Mouse ESTs (Arakawa,T., et al. 2001)
  JOURNAL   Unpublished (2001)
COMMENT     Contact: Yoshihide Hayashizaki
            Laboratory for Genome Exploration Research Group, RIKEN Genomic
            Sciences Center(GSC), Yokohama Institute
            The Institute of Physical and Chemical Research (RIKEN)
            1-7-22 Suehiro-cho, Tsurumi-ku, Yokohama, Kanagawa 230-0045, Japan
            Tel: 81-45-503-9222
            Fax: 81-45-503-9216
            Email: genome-res@gsc.riken.go.jp,
            URL:http://genome.gsc.riken.go.jp/
            Carninci,P., Shibata,Y., Hayatsu,N., Sugahara,Y., Shibata,K., Itoh
            ,M., Konno,H., Okazaki,Y., Muramatsu,M. and Hayashizaki,Y.
             Normalization and subtraction of cap-trapper-selected cDNAs to
            prepare full-length cDNA libraries for rapid discovery of new
            genes. Genome Res. . 10 (10), 1617-1630 (2000)
             wagi,K., Fujiwake,S., Inoue,K., Togawa,Y., Izawa,M., Ohara,E.,
            Watahiki,M., Yoneda,Y., Ishikawa,T., Ozawa,K., Tanaka,T., Matsuura
            ,S., Kawai,J., Okazaki,Y., Muramatsu,M., Inoue,Y., Kira,A. and
            Hayashizaki,Y.
             RIKEN integrated sequence analysis (RISA) system--384-format
            sequencing pipeline with 384 multicapillary sequencer. Genome Res. .
            10 (11), 1757-1771 (2000)
             Konno,H., Fukunishi,Y., Shibata,K., Itoh,M., Carninci,P., Sugahara
            ,Y. and Hayashizaki,Y.
             Computer-based methods for the mouse full-length cDNA
            encyclopedia: real-time sequence clustering for construction of a
            nonredundant cDNA library. Genome Res. . 11 (2), 281-289 (2001)
             Kondo,S., Shinagawa,A., Saito,T., Kiyosawa,H., Yamanaka,I., Aizawa
            ,K., Fukuda,S., Hara,A., Itoh,M., Kawai,J., Shibata,K. and
            Hayashizaki,Y.
             Computational Analysis of Full-Length Mouse cDNAs Compared with
            Human Genome Sequences. Mamm. Genome. 12, 673-677 (2001)
             Please visit our web site (http://genome.gsc.riken.go.jp) for
            further details.
             e mouse tissues.
FEATURES             Location/Qualifiers
     source          1. .636
                     /organism="Mus musculus"
                     /strain="C57BL/6J"
                     /db_xref="taxon:10090"
                     /clone="C920004C08"
                     /clone_lib="RIKEN full-length enriched, 2 days neonate
                     thymus thymic cells"
                     /tissue_type="thymus"
                     /cell_type="thymic cells"
                     /dev_stage="2 days neonate"
                     /note="Vector: pSPORT1; Site_1: SalI; Site_2: NotI; This
                     clone is among a rearrayed set of 15,247 clones from 11
                     embryo  cDNA libraries (including preimplantation stage
                     embryos from  unfertilized egg to blastocyst, embryonic
                     part of E7.5 embryos,  extraembryonic part of E7.5 embryos
                     , and E12.5 female mesonephros/gonad)  and one newborn
                     ovary cDNA library. Average insert size 1.5 kb. All
                     source libraries are cloned unidirectionally with Oligo(dT
                     )-Not primers.  References include: (1) Genome-wide
                     expression profiling of mid-gestation  placenta and embryo
                     using a 15,000 mouse developmental cDNA microarray,  2000,
                     Proc. Natl. Acad. Sci. U S A, 97: 9127-9132; (2)
                     Large-scale cDNA  analysis reveals phased gene expression
                     patterns during preimplantation  mouse develolpment, 2000,
                     Development, 127: 1737-1749; (3) Genome-wide  mapping of
                     unselected transcripts from extraembryonic tissue of
                     7.5-day  mouse embryos reveals enrichment in the t-complex
                     and under-representation  on the X chromosome, 1998, Hum
                     Mol Genet 7: 1967-1978."
BASE COUNT      176 a    188 c    146 g    125 t      1 others
ORIGIN

  Query Match             92.0%;  Score 18.4;  DB 10;  Length 636;
  Best Local Similarity   95.0%;  Pred. No. 3.9e+02;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;
```

```
Qy      1 TCCATGTCGTTCCTGATGCT 20
          |||||||| ||||||||||
Db    564 TCCATGTCGGTCCTGATGCT 545


RESULT 13
BG863609/c
LOCUS       BG863609                637 bp    mRNA    linear   EST 29-MAY-2001
DEFINITION  602796816F1 NCI_CGAP_Mam4 Mus musculus cDNA clone IMAGE:4918107 5',
            mRNA sequence.
ACCESSION   BG863609
VERSION     BG863609.1  GI:14214147
KEYWORDS    EST.
SOURCE      house mouse.
  ORGANISM  Mus musculus
            Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
            Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
REFERENCE   1  (bases 1 to 637)
  AUTHORS   NIH-MGC http://mgc.nci.nih.gov/.
  TITLE     National Institutes of Health, Mammalian Gene Collection (MGC)
  JOURNAL   Unpublished (1999)
COMMENT     Contact: Robert Strausberg, Ph.D.
            Email: cgapbs-r@mail.nih.gov
            Tissue Procurement: Lothar Hennighausen Ph.D., Priscilla Furth
            Ph.D.
             cDNA Library Preparation: Life Technologies, Inc.
             cDNA Library Arrayed by: The I.M.A.G.E. Consortium (LLNL)
             DNA Sequencing by: Incyte Genomics, Inc.
             Clone distribution: MGC clone distribution information can be
            found through the I.M.A.G.E. Consortium/LLNL at:
            http://image.llnl.gov
            Plate: LLAM10830  row: o  column: 04
            High quality sequence start: 3
            High quality sequence stop: 631.
FEATURES             Location/Qualifiers
     source          1. .637
                     /organism="Mus musculus"
                     /strain="NMRI"
                     /db_xref="taxon:10090"
                     /clone="IMAGE:4918107"
                     /clone_lib="NCI_CGAP_Mam4"
                     /tissue_type="tumor, gross tissue"
                     /dev_stage="5 months"
                     /lab_host="DH10B"
                     /note="Organ: mammary; Vector: pCMV-SPORT6; Site_1: SalI;
                     Site_2: NotI; Cloned unidirectionally.  Primer: Oligo dT.
                     Library constructed by Life Technologies. Investigators
                     providing samples: Lothar Hennighausen/Priscilla Furth,
                     NIH Reference for transgenic model: Li et al., Cell Growth
                     and  Differentiation 7, 3-11 (1996)."
BASE COUNT      178 a    196 c    141 g    122 t
ORIGIN

  Query Match             92.0%;  Score 18.4;  DB 12;  Length 637;
  Best Local Similarity   95.0%;  Pred. No. 3.9e+02;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy      1 TCCATGTCGTTCCTGATGCT 20
          |||||||| ||||||||||
Db    337 TCCATGTCGGTCCTGATGCT 318


RESULT 14
BI329902/c
LOCUS       BI329902                638 bp    mRNA    linear   EST 30-JUL-2001
DEFINITION  602980033F1 NCI_CGAP_Li9 Mus musculus cDNA clone IMAGE:5132817 5',
            mRNA sequence.
ACCESSION   BI329902
VERSION     BI329902.1  GI:15014559
KEYWORDS    EST.
SOURCE      house mouse.
  ORGANISM  Mus musculus.
            Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
            Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
REFERENCE   1  (bases 1 to 638)
  AUTHORS   NIH-MGC http://mgc.nci.nih.gov/.
  TITLE     National Institutes of Health, Mammalian Gene Collection (MGC)
  JOURNAL   Unpublished (1999)
COMMENT     Contact: Robert Strausberg, Ph.D.
            Email: cgapbs-r@mail.nih.gov
            Tissue Procurement: Jeffrey E. Green, M.D.
             cDNA Library Preparation: Life Technologies, Inc.
             cDNA Library Arrayed by: The I.M.A.G.E. Consortium (LLNL)
             DNA Sequencing by: Incyte Genomics, Inc.
             Clone distribution: MGC clone distribution information can be
            found through the I.M.A.G.E. Consortium/LLNL at:
            http://image.llnl.gov
            Plate: LLAM11326  row: a  column: 10
            High quality sequence stop: 638.
FEATURES             Location/Qualifiers
     source          1. .638
                     /organism="Mus musculus"
                     /strain="FVB/N"
                     /db_xref="taxon:10090"
                     /clone="IMAGE:5132817"
                     /clone_lib="NCI_CGAP_Li9"
                     /lab_host="DH10B (T1 phage-resistant)"
                     /note="Organ: liver; Vector: pCMV-SPORT6; Site_1: NotI;
                     Site_2: SalI; Cloned unidirectionally. Primer: Oligo dT.
                     Average insert size 1.9 kb. Constructed by Life
                     Technologies. Note: this is a NCI_CGAP Library."
BASE COUNT      172 a    182 c    163 g    121 t
ORIGIN

  Query Match             92.0%;  Score 18.4;  DB 13;  Length 638;
  Best Local Similarity   95.0%;  Pred. No. 3.9e+02;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy      1 TCCATGTCGTTCCTGATGCT 20
          |||||||| ||||||||||
Db    167 TCCATGTCGGTCCTGATGCT 148


RESULT 15
BF299738/c
LOCUS       BF299738                642 bp    mRNA    linear   EST 21-NOV-2000
DEFINITION  602029243F1 NCI_CGAP_SG2 Mus musculus cDNA clone IMAGE:4164466 5',
            mRNA sequence.
ACCESSION   BF299738
VERSION     BF299738.1  GI:11246261
KEYWORDS    EST.
SOURCE      house mouse.
  ORGANISM  Mus musculus
            Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
            Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
REFERENCE   1  (bases 1 to 642)
  AUTHORS   NIH-MGC http://mgc.nci.nih.gov/.
  TITLE     National Institutes of Health, Mammalian Gene Collection (MGC)
  JOURNAL   Unpublished (1999)
COMMENT     Contact: Robert Strausberg, Ph.D.
            Email: cgapbs-r@mail.nih.gov
            Tissue Procurement: Jeffrey E. Green, M.D.
             cDNA Library Preparation: Life Technologies, Inc.
             cDNA Library Arrayed by: The I.M.A.G.E. Consortium (LLNL)
             DNA Sequencing by: Incyte Genomics, Inc.
             Clone distribution: MGC clone distribution information can be
            found through the I.M.A.G.E. Consortium/LLNL at:
            http://image.llnl.gov
            Plate: LLAM9450  row: e  column: 11
            High quality sequence stop: 642.
FEATURES             Location/Qualifiers
     source          1. .642
                     /organism="Mus musculus"
                     /strain="FVB/N"
                     /db_xref="taxon:10090"
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/clone="IMAGE:4164466"
/clone_lib="NCI_CGAP_SG2"
/lab_host="DH10B (T1 phage-resistant)"
/note="Organ: salivary gland; Vector: pCMV-SPORT6; Site_1: NotI; Site_2: SalI; Cloned unidirectionally. Primer: Oligo dT. Average insert size 1.3 kb. Constructed by Life Technologies. Note: this is a NCI_CGAP Library."

BASE COUNT 183 a 190 c 147 g 122 t
ORIGIN

Query Match 92.0%; Score 18.4; DB 12; Length 642;
Best Local Similarity 95.0%; Pred. No. 3.9e+02;
Matches 19; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

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Qy      1 TCCATGTCGTTCCTGATGCT 20
          ||||||||| ||||||||||
Db    298 TCCATGTCGGTCCTGATGCT 279
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Search completed: March 1, 2003, 22:50:04
Job time : 1109.25 secs

GenCore version 5.1.4_p5_4578


OM nucleic - nucleic search, using sw model

Run on: March 1, 2003, 21:03:21 ; Search time 44.25 Seconds
(without alignments)
281.862 Million cell updates/sec

Title: US-09-818-918-43
Perfect score: 20
Sequence: 1 tccatgtcgttcctgatgct 20

Scoring table: IDENTITY_NUC
Gapop 10.0 , Gapext 1.0

Searched: 460893 seqs, 311809382 residues

Total number of hits satisfying chosen parameters: 921786

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : Published_Applications_NA:*
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2: /cgn2_6/ptodata/2/pubpna/PCT_NEW_PUB.seq:*
3: /cgn2_6/ptodata/2/pubpna/US06_NEW_PUB.seq:*
4: /cgn2_6/ptodata/2/pubpna/US06_PUBCOMB.seq:*
5: /cgn2_6/ptodata/2/pubpna/US07_NEW_PUB.seq:*
6: /cgn2_6/ptodata/2/pubpna/PCTUS_PUBCOMB.seq:*
7: /cgn2_6/ptodata/2/pubpna/US08_NEW_PUB.seq:*
8: /cgn2_6/ptodata/2/pubpna/US08_PUBCOMB.seq:*
9: /cgn2_6/ptodata/2/pubpna/US09_NEW_PUB.seq:*
10: /cgn2_6/ptodata/2/pubpna/US09_PUBCOMB.seq:*
11: /cgn2_6/ptodata/2/pubpna/US10_NEW_PUB.seq:*
12: /cgn2_6/ptodata/2/pubpna/US10_PUBCOMB.seq:*
13: /cgn2_6/ptodata/2/pubpna/US60_NEW_PUB.seq:*
14: /cgn2_6/ptodata/2/pubpna/US60_PUBCOMB.seq:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

| Result No. | Score | % Query Match | Length | DB | ID | Description |
|---|---|---|---|---|---|---|
| 1 | 20 | 100.0 | 20 | 9 | US-09-800-266A-49 | Sequence 49, Appl |
| 2 | 20 | 100.0 | 20 | 9 | US-09-895-007A-49 | Sequence 49, Appl |
| 3 | 20 | 100.0 | 20 | 9 | US-10-023-909A-49 | Sequence 49, Appl |
| 4 | 20 | 100.0 | 20 | 9 | US-10-074-956-2 | Sequence 2, Appli |
| 5 | 20 | 100.0 | 20 | 9 | US-09-920-313-49 | Sequence 49, Appl |
| c 6 | 20 | 100.0 | 20 | 9 | US-09-888-326-62 | Sequence 62, Appl |
| 7 | 20 | 100.0 | 20 | 9 | US-09-888-326-611 | Sequence 611, App |
| 8 | 20 | 100.0 | 20 | 10 | US-09-824-468-48 | Sequence 48, Appl |
| 9 | 20 | 100.0 | 20 | 10 | US-09-824-468-56 | Sequence 56, Appl |
| 10 | 20 | 100.0 | 20 | 10 | US-09-824-468-57 | Sequence 57, Appl |
| 11 | 20 | 100.0 | 28 | 9 | US-09-888-326-132 | Sequence 132, App |
| 12 | 19 | 95.0 | 20 | 9 | US-09-888-326-610 | Sequence 610, App |
| 13 | 19 | 95.0 | 20 | 9 | US-09-888-326-620 | Sequence 620, App |
| 14 | 18.4 | 92.0 | 20 | 9 | US-09-800-266A-17 | Sequence 17, Appl |
| 15 | 18.4 | 92.0 | 20 | 9 | US-09-800-266A-18 | Sequence 18, Appl |
| 16 | 18.4 | 92.0 | 20 | 9 | US-09-800-266A-19 | Sequence 19, Appl |
| 17 | 18.4 | 92.0 | 20 | 9 | US-09-800-266A-35 | Sequence 35, Appl |
| 18 | 18.4 | 92.0 | 20 | 9 | US-09-800-266A-39 | Sequence 39, Appl |
| 19 | 18.4 | 92.0 | 20 | 9 | US-09-800-266A-40 | Sequence 40, Appl |
| 20 | 18.4 | 92.0 | 20 | 9 | US-09-800-266A-41 | Sequence 41, Appl |
| 21 | 18.4 | 92.0 | 20 | 9 | US-09-846-091-4 | Sequence 4, Appli |
| 22 | 18.4 | 92.0 | 20 | 9 | US-09-895-007A-17 | Sequence 17, Appl |
| 23 | 18.4 | 92.0 | 20 | 9 | US-09-895-007A-18 | Sequence 18, Appl |
| 24 | 18.4 | 92.0 | 20 | 9 | US-09-895-007A-19 | Sequence 19, Appl |
| 25 | 18.4 | 92.0 | 20 | 9 | US-09-895-007A-35 | Sequence 35, Appl |
| 26 | 18.4 | 92.0 | 20 | 9 | US-09-895-007A-39 | Sequence 39, Appl |
| 27 | 18.4 | 92.0 | 20 | 9 | US-09-895-007A-40 | Sequence 40, Appl |
| 28 | 18.4 | 92.0 | 20 | 9 | US-09-895-007A-41 | Sequence 41, Appl |
| 29 | 18.4 | 92.0 | 20 | 9 | US-10-023-909A-17 | Sequence 17, Appl |
| 30 | 18.4 | 92.0 | 20 | 9 | US-10-023-909A-18 | Sequence 18, Appl |
| 31 | 18.4 | 92.0 | 20 | 9 | US-10-023-909A-19 | Sequence 19, Appl |
| 32 | 18.4 | 92.0 | 20 | 9 | US-10-023-909A-35 | Sequence 35, Appl |
| 33 | 18.4 | 92.0 | 20 | 9 | US-10-023-909A-39 | Sequence 39, Appl |
| 34 | 18.4 | 92.0 | 20 | 9 | US-10-023-909A-40 | Sequence 40, Appl |
| 35 | 18.4 | 92.0 | 20 | 9 | US-10-023-909A-41 | Sequence 41, Appl |
| 36 | 18.4 | 92.0 | 20 | 9 | US-09-920-313-17 | Sequence 17, Appl |
| 37 | 18.4 | 92.0 | 20 | 9 | US-09-920-313-18 | Sequence 18, Appl |
| 38 | 18.4 | 92.0 | 20 | 9 | US-09-920-313-19 | Sequence 19, Appl |
| 39 | 18.4 | 92.0 | 20 | 9 | US-09-920-313-35 | Sequence 35, Appl |
| 40 | 18.4 | 92.0 | 20 | 9 | US-09-920-313-39 | Sequence 39, Appl |
| 41 | 18.4 | 92.0 | 20 | 9 | US-09-920-313-40 | Sequence 40, Appl |
| 42 | 18.4 | 92.0 | 20 | 9 | US-09-920-313-41 | Sequence 41, Appl |
| 43 | 18.4 | 92.0 | 20 | 9 | US-10-205-150-7 | Sequence 7, Appli |
| 44 | 18.4 | 92.0 | 20 | 9 | US-10-011-635A-1 | Sequence 1, Appli |
| 45 | 18.4 | 92.0 | 20 | 9 | US-09-415-142-21 | Sequence 21, Appl |

ALIGNMENTS

RESULT 1
US-09-800-266A-49
; Sequence 49, Application US/09800266A
; Patent No. US20020156033A1
; GENERAL INFORMATION:
; APPLICANT: Bratzler, Robert L.
; APPLICANT: Petersen, Deanna M.
; TITLE OF INVENTION: Immunostimulatory Nucleic Acids and
; TITLE OF INVENTION: Cancer Medicament Combination Therapy for the Treatment of
; TITLE OF INVENTION: Cancer
; FILE REFERENCE: C1037/7017(HCL/MAT)
; CURRENT APPLICATION NUMBER: US/09/800,266A
; CURRENT FILING DATE: 2001-03-05
; PRIOR APPLICATION NUMBER: US 60/187,214
; PRIOR FILING DATE: 2000-03-03
; NUMBER OF SEQ ID NOS: 146
; SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 49
; LENGTH: 20
; TYPE: DNA
; ORGANISM: Artificial Sequence
; FEATURE:
; OTHER INFORMATION: Synthetic Sequence
US-09-800-266A-49

Query Match 100.0%; Score 20; DB 9; Length 20;
Best Local Similarity 100.0%; Pred. No. 0.67;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 TCCATGTCGTTCCTGATGCT 20
||||||||||||||||||||
Db 1 TCCATGTCGTTCCTGATGCT 20

RESULT 2
US-09-895-007A-49
; Sequence 49, Application US/09895007A
; Patent No. US20020165178A1
; GENERAL INFORMATION:
; APPLICANT: Schetter, Christian
; APPLICANT: Bratzler, Robert L.
; APPLICANT: Petersen, Deanna M.

```
;  TITLE OF INVENTION: IMMUNOSTIMULATORY NUCLEIC ACIDS FOR THE
;  TITLE OF INVENTION:  TREATMENT OF ANEMIA, THROMBOCYTOPENIA, AND NEUTROPENIA
;  FILE REFERENCE: C1041/7014 (AWS)
;  CURRENT APPLICATION NUMBER: US/09/895,007A
;  CURRENT FILING DATE:  2001-06-28
;  PRIOR APPLICATION NUMBER: US 60/214,368
;  PRIOR FILING DATE: 2000-06-28
;  NUMBER OF SEQ ID NOS: 133
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 49
;    LENGTH: 20
;    TYPE: DNA
;    ORGANISM: Artificial Sequence
;    FEATURE:
;    OTHER INFORMATION: Synthetic oligonucleotide
US-09-895-007A-49

  Query Match             100.0%;  Score 20;  DB 9;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 0.67;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGTCGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATGTCGTTCCTGATGCT 20


RESULT 3
US-10-023-909A-49
; Sequence 49, Application US/10023909A
; Patent No. US20020164341A1
; GENERAL INFORMATION:
;  APPLICANT: Davis, Heather L.
;  APPLICANT:  Schorr, Joachim
;  APPLICANT:  Krieg, Arthur M.
;  TITLE OF INVENTION: Use of Nucleic Acids Containing
;  TITLE OF INVENTION:  Unmethylated CpG Dinucleotide as an Adjuvant
;  FILE REFERENCE: C1039/7058/HCL
;  CURRENT APPLICATION NUMBER: US/10/023,909A
;  CURRENT FILING DATE:  2001-12-18
;  PRIOR APPLICATION NUMBER: US 09/325,193
;  PRIOR FILING DATE: 1999-06-03
;  PRIOR APPLICATION NUMBER: US 09/154,614
;  PRIOR FILING DATE: 1998-09-16
;  PRIOR APPLICATION NUMBER: PCT/US98/04703
;  PRIOR FILING DATE: 1998-03-10
;  PRIOR APPLICATION NUMBER: US 60/040,376
;  PRIOR FILING DATE: 1997-03-10
;  NUMBER OF SEQ ID NOS: 98
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 49
;    LENGTH: 20
;    TYPE: DNA
;    ORGANISM: Artificial Sequence
;    FEATURE:
;    OTHER INFORMATION: Synthetic Oligonucleotide
US-10-023-909A-49

  Query Match             100.0%;  Score 20;  DB 9;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 0.67;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGTCGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATGTCGTTCCTGATGCT 20


RESULT 4
US-10-074-956-2
; Sequence 2, Application US/10074956
; Publication No. US20020193332A1
; GENERAL INFORMATION:
;  APPLICANT: Hedley, Mary Lynne
;  TITLE OF INVENTION: METHODS OF TREATING BLADDER DISORDERS
;  FILE REFERENCE: 08191-022001
;  CURRENT APPLICATION NUMBER: US/10/074,956
;  CURRENT FILING DATE:  2002-06-10
;  PRIOR APPLICATION NUMBER: 60/268,175
;  PRIOR FILING DATE: 2001-02-12
;  NUMBER OF SEQ ID NOS: 29
;  SOFTWARE: FastSEQ for Windows Version 4.0
; SEQ ID NO 2
;    LENGTH: 20
;    TYPE: DNA
;    ORGANISM: Homo sapiens
US-10-074-956-2

  Query Match             100.0%;  Score 20;  DB 9;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 0.67;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGTCGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATGTCGTTCCTGATGCT 20


RESULT 5
US-09-920-313-49
; Sequence 49, Application US/09920313
; Publication No. US20020198165A1
; GENERAL INFORMATION:
;  APPLICANT: Bratzler, Robert L.
;  APPLICANT:  Petersen, Deanna M.
;  TITLE OF INVENTION: Nucleic Acids for the Prevention and
;  TITLE OF INVENTION:  Treatment of Gastric Ulcers
;  FILE REFERENCE: C1037/7019 (HCL/MAT)
;  CURRENT APPLICATION NUMBER: US/09/920,313
;  CURRENT FILING DATE:  2001-08-01
;  PRIOR APPLICATION NUMBER: US 60/222,248
;  PRIOR FILING DATE: 2001-08-08
;  NUMBER OF SEQ ID NOS: 148
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 49
;    LENGTH: 20
;    TYPE: DNA
;    ORGANISM: Artificial Sequence
;    FEATURE:
;    OTHER INFORMATION: Synthetic Sequence
US-09-920-313-49

  Query Match             100.0%;  Score 20;  DB 9;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 0.67;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGTCGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATGTCGTTCCTGATGCT 20


RESULT 6
US-09-888-326-62/c
; Sequence 62, Application US/09888326
; Publication No. US20030026801A1
; GENERAL INFORMATION:
;  APPLICANT: Weiner, George
;  APPLICANT:  Hartmann, Gunther
;  TITLE OF INVENTION: Methods for Enhancing Antibody-Induced
;  TITLE OF INVENTION:  Cell Lysis and Treating Cancer
;  FILE REFERENCE: C1039/7052 (AWS)
;  CURRENT APPLICATION NUMBER: US/09/888,326
;  CURRENT FILING DATE:  2001-06-22
;  PRIOR APPLICATION NUMBER: US 60/213,346
;  PRIOR FILING DATE: 2000-06-22
;  NUMBER OF SEQ ID NOS: 848
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 62
;    LENGTH: 20
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;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic oligonucleotide
;   NAME/KEY: misc_feature
;   LOCATION: (0)...(0)
;   OTHER INFORMATION: phosphodiester backbone
US-09-888-326-62

  Query Match             100.0%;  Score 20;  DB 9;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 0.67;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGTCGTTCCTGATGCT 20
          ||||||||||||||||||||
Db     20 TCCATGTCGTTCCTGATGCT 1


RESULT 7
US-09-888-326-611
; Sequence 611, Application US/09888326
; Publication No. US20030026801A1
; GENERAL INFORMATION:
;  APPLICANT: Weiner, George
;  APPLICANT:  Hartmann, Gunther
;  TITLE OF INVENTION: Methods for Enhancing Antibody-Induced
;  TITLE OF INVENTION:  Cell Lysis and Treating Cancer
;  FILE REFERENCE: C1039/7052 (AWS)
;  CURRENT APPLICATION NUMBER: US/09/888,326
;  CURRENT FILING DATE:  2001-06-22
;  PRIOR APPLICATION NUMBER: US 60/213,346
;  PRIOR FILING DATE: 2000-06-22
;  NUMBER OF SEQ ID NOS: 848
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 611
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic oligonucleotide
;   NAME/KEY: misc_feature
;   LOCATION: (0)...(0)
;   OTHER INFORMATION: phosphodiester backbone
US-09-888-326-611

  Query Match             100.0%;  Score 20;  DB 9;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 0.67;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGTCGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATGTCGTTCCTGATGCT 20


RESULT 8
US-09-824-468-48
; Sequence 48, Application US/09824468
; Patent No. US20020064515A1
; GENERAL INFORMATION:
;  APPLICANT: Krieg, Arthur M.
;  APPLICANT:  Weiner, George
;  TITLE OF INVENTION: Methods and Products for Stimulating the
;  TITLE OF INVENTION:  Immune System Using Immunotherapeutic Oligonucleotides and
;  TITLE OF INVENTION:  Cytokines
;  FILE REFERENCE: C1039/7026/HCL
;  CURRENT APPLICATION NUMBER: US/09/824,468
;  CURRENT FILING DATE:  2001-04-02
;  PRIOR APPLICATION NUMBER: 09/286,098
;  PRIOR FILING DATE: 1999-04-02
;  NUMBER OF SEQ ID NOS: 105
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 48
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic Sequence
US-09-824-468-48

  Query Match             100.0%;  Score 20;  DB 10;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 0.67;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGTCGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATGTCGTTCCTGATGCT 20


RESULT 9
US-09-824-468-56
; Sequence 56, Application US/09824468
; Patent No. US20020064515A1
; GENERAL INFORMATION:
;  APPLICANT: Krieg, Arthur M.
;  APPLICANT:  Weiner, George
;  TITLE OF INVENTION: Methods and Products for Stimulating the
;  TITLE OF INVENTION:  Immune System Using Immunotherapeutic Oligonucleotides and
;  TITLE OF INVENTION:  Cytokines
;  FILE REFERENCE: C1039/7026/HCL
;  CURRENT APPLICATION NUMBER: US/09/824,468
;  CURRENT FILING DATE:  2001-04-02
;  PRIOR APPLICATION NUMBER: 09/286,098
;  PRIOR FILING DATE: 1999-04-02
;  NUMBER OF SEQ ID NOS: 105
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 56
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic Sequence
US-09-824-468-56

  Query Match             100.0%;  Score 20;  DB 10;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 0.67;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGTCGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATGTCGTTCCTGATGCT 20


RESULT 10
US-09-824-468-57
; Sequence 57, Application US/09824468
; Patent No. US20020064515A1
; GENERAL INFORMATION:
;  APPLICANT: Krieg, Arthur M.
;  APPLICANT:  Weiner, George
;  TITLE OF INVENTION: Methods and Products for Stimulating the
;  TITLE OF INVENTION:  Immune System Using Immunotherapeutic Oligonucleotides and
;  TITLE OF INVENTION:  Cytokines
;  FILE REFERENCE: C1039/7026/HCL
;  CURRENT APPLICATION NUMBER: US/09/824,468
;  CURRENT FILING DATE:  2001-04-02
;  PRIOR APPLICATION NUMBER: 09/286,098
;  PRIOR FILING DATE: 1999-04-02
;  NUMBER OF SEQ ID NOS: 105
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 57
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic Sequence
;   NAME/KEY: modified_base
```

```
;   LOCATION: (8)...(8)
;   OTHER INFORMATION: m5c
US-09-824-468-57

  Query Match             100.0%;  Score 20;  DB 10;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 0.67;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGTCGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATGTCGTTCCTGATGCT 20


RESULT 11
US-09-888-326-132
; Sequence 132, Application US/09888326
; Publication No. US20030026801A1
; GENERAL INFORMATION:
;  APPLICANT: Weiner, George
;  APPLICANT:  Hartmann, Gunther
;  TITLE OF INVENTION: Methods for Enhancing Antibody-Induced
;  TITLE OF INVENTION:  Cell Lysis and Treating Cancer
;  FILE REFERENCE: C1039/7052 (AWS)
;  CURRENT APPLICATION NUMBER: US/09/888,326
;  CURRENT FILING DATE:  2001-06-22
;  PRIOR APPLICATION NUMBER: US 60/213,346
;  PRIOR FILING DATE: 2000-06-22
;  NUMBER OF SEQ ID NOS: 848
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 132
;   LENGTH: 28
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic oligonucleotide
;   NAME/KEY: misc_feature
;   LOCATION: (0)...(0)
;   OTHER INFORMATION: chimeric phosphorothioate/phosphodiester backbone
;   OTHER INFORMATION: with phosphodiester on 5' end
;   NAME/KEY: misc_feature
;   LOCATION: (1)...(1)
;   OTHER INFORMATION: biotinylated at 5' end
US-09-888-326-132

  Query Match             100.0%;  Score 20;  DB 9;  Length 28;
  Best Local Similarity   100.0%;  Pred. No. 0.68;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGTCGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      5 TCCATGTCGTTCCTGATGCT 24


RESULT 12
US-09-888-326-610
; Sequence 610, Application US/09888326
; Publication No. US20030026801A1
; GENERAL INFORMATION:
;  APPLICANT: Weiner, George
;  APPLICANT:  Hartmann, Gunther
;  TITLE OF INVENTION: Methods for Enhancing Antibody-Induced
;  TITLE OF INVENTION:  Cell Lysis and Treating Cancer
;  FILE REFERENCE: C1039/7052 (AWS)
;  CURRENT APPLICATION NUMBER: US/09/888,326
;  CURRENT FILING DATE:  2001-06-22
;  PRIOR APPLICATION NUMBER: US 60/213,346
;  PRIOR FILING DATE: 2000-06-22
;  NUMBER OF SEQ ID NOS: 848
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 610
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic oligonucleotide
;   NAME/KEY: misc_feature
;   LOCATION: (0)...(0)
;   OTHER INFORMATION: phosphodiester backbone
US-09-888-326-610

  Query Match             95.0%;  Score 19;  DB 9;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 2;
  Matches   19;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGTCGTTCCTGATGC 19
          |||||||||||||||||||
Db      1 TCCATGTCGTTCCTGATGC 19


RESULT 13
US-09-888-326-620
; Sequence 620, Application US/09888326
; Publication No. US20030026801A1
; GENERAL INFORMATION:
;  APPLICANT: Weiner, George
;  APPLICANT:  Hartmann, Gunther
;  TITLE OF INVENTION: Methods for Enhancing Antibody-Induced
;  TITLE OF INVENTION:  Cell Lysis and Treating Cancer
;  FILE REFERENCE: C1039/7052 (AWS)
;  CURRENT APPLICATION NUMBER: US/09/888,326
;  CURRENT FILING DATE:  2001-06-22
;  PRIOR APPLICATION NUMBER: US 60/213,346
;  PRIOR FILING DATE: 2000-06-22
;  NUMBER OF SEQ ID NOS: 848
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 620
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic oligonucleotide
;   NAME/KEY: misc_feature
;   LOCATION: (0)...(0)
;   OTHER INFORMATION: phosphodiester backbone
;   NAME/KEY: modified_base
;   LOCATION: (8)...(8)
;   OTHER INFORMATION: m5c
US-09-888-326-620

  Query Match             95.0%;  Score 19;  DB 9;  Length 20;
  Best Local Similarity   95.0%;  Pred. No. 2;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy      1 TCCATGTCGTTCCTGATGCT 20
          ||||||| ||||||||||||
Db      1 TCCATGTNGTTCCTGATGCT 20


RESULT 14
US-09-800-266A-17
; Sequence 17, Application US/09800266A
; Patent No. US20020156033A1
; GENERAL INFORMATION:
;  APPLICANT: Bratzler, Robert L.
;  APPLICANT:  Petersen, Deanna M.
;  TITLE OF INVENTION: Immunostimulatory Nucleic Acids and
;  TITLE OF INVENTION:  Cancer Medicament Combination Therapy for the Treatment of
;  TITLE OF INVENTION:  Cancer
;  FILE REFERENCE: C1037/7017(HCL/MAT)
;  CURRENT APPLICATION NUMBER: US/09/800,266A
;  CURRENT FILING DATE:  2001-03-05
;  PRIOR APPLICATION NUMBER: US 60/187,214
;  PRIOR FILING DATE: 2000-03-03
;  NUMBER OF SEQ ID NOS: 146
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 17
```

; LENGTH: 20
; TYPE: DNA
; ORGANISM: Artificial Sequence
; FEATURE:
; OTHER INFORMATION: Synthetic Sequence
US-09-800-266A-17

Query Match 92.0%; Score 18.4; DB 9; Length 20;
Best Local Similarity 95.0%; Pred. No. 4;
Matches 19; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

Qy 1 TCCATGTCGTTCCTGATGCT 20
||||||||| ||||||||||
Db 1 TCCATGTCGGTCCTGATGCT 20

RESULT 15
US-09-800-266A-18
; Sequence 18, Application US/09800266A
; Patent No. US20020156033A1
; GENERAL INFORMATION:
; APPLICANT: Bratzler, Robert L.
; APPLICANT: Petersen, Deanna M.
; TITLE OF INVENTION: Immunostimulatory Nucleic Acids and
; TITLE OF INVENTION: Cancer Medicament Combination Therapy for the Treatment of
; TITLE OF INVENTION: Cancer
; FILE REFERENCE: C1037/7017(HCL/MAT)
; CURRENT APPLICATION NUMBER: US/09/800,266A
; CURRENT FILING DATE: 2001-03-05
; PRIOR APPLICATION NUMBER: US 60/187,214
; PRIOR FILING DATE: 2000-03-03
; NUMBER OF SEQ ID NOS: 146
; SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 18
; LENGTH: 20
; TYPE: DNA
; ORGANISM: Artificial Sequence
; FEATURE:
; OTHER INFORMATION: Synthetic Sequence
US-09-800-266A-18

Query Match 92.0%; Score 18.4; DB 9; Length 20;
Best Local Similarity 95.0%; Pred. No. 4;
Matches 19; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

Qy 1 TCCATGTCGTTCCTGATGCT 20
||||||||| ||||||||||
Db 1 TCCATGTCGGTCCTGATGCT 20

Search completed: March 1, 2003, 22:56:09
Job time : 44.25 secs

GenCore version 5.1.4_p5_4578


OM nucleic - nucleic search, using sw model

Run on: March 1, 2003, 21:36:01 ; Search time 358.25 Seconds
(without alignments)
1624.720 Million cell updates/sec

Title: US-09-818-918-43
Perfect score: 20
Sequence: 1 tccatgtcgttcctgatgct 20

Scoring table: IDENTITY_NUC
Gapop 10.0 , Gapext 1.0

Searched: 2054640 seqs, 14551402878 residues

Total number of hits satisfying chosen parameters: 995600

Minimum DB seq length: 0
Maximum DB seq length: 100

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : GenEmbl:*
1: gb_ba:*
2: gb_htg:*
3: gb_in:*
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6: gb_pat:*
7: gb_ph:*
8: gb_pl:*
9: gb_pr:*
10: gb_ro:*
11: gb_sts:*
12: gb_sy:*
13: gb_un:*
14: gb_vi:*
15: em_ba:*
16: em_fun:*
17: em_hum:*
18: em_in:*
19: em_mu:*
20: em_om:*
21: em_or:*
22: em_ov:*
23: em_pat:*
24: em_ph:*
25: em_pl:*
26: em_ro:*
27: em_sts:*
28: em_un:*
29: em_vi:*
30: em_htg_hum:*
31: em_htg_inv:*
32: em_htg_other:*
33: em_htg_mus:*
34: em_htg_pln:*
35: em_htg_rod:*
36: em_htg_mam:*
37: em_htg_vrt:*
38: em_sy:*
39: em_htgo_hum:*
40: em_htgo_mus:*
41: em_htgo_other:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

| Result No. | Score | % Query Match | Length | DB | ID | Description |
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| 2 | 20 | 100.0 | 20 | 6 | AR140494 | AR140494 Sequence |
| 3 | 20 | 100.0 | 20 | 6 | AR146336 | AR146336 Sequence |
| 4 | 20 | 100.0 | 20 | 6 | AR146344 | AR146344 Sequence |
| 5 | 20 | 100.0 | 20 | 6 | AR146345 | AR146345 Sequence |
| 6 | 20 | 100.0 | 20 | 6 | AR154709 | AR154709 Sequence |
| 7 | 20 | 100.0 | 20 | 6 | AR182899 | AR182899 Sequence |
| 8 | 20 | 100.0 | 20 | 6 | AX045773 | AX045773 Sequence |
| 9 | 20 | 100.0 | 20 | 6 | AX045774 | AX045774 Sequence |
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| 11 | 20 | 100.0 | 20 | 6 | AX104567 | AX104567 Sequence |
| 12 | 20 | 100.0 | 20 | 6 | AX135637 | AX135637 Sequence |
| 13 | 20 | 100.0 | 20 | 6 | AX351747 | AX351747 Sequence |
| 14 | 20 | 100.0 | 20 | 6 | AX351813 | AX351813 Sequence |
| 15 | 20 | 100.0 | 20 | 6 | AX351836 | AX351836 Sequence |
| 16 | 20 | 100.0 | 20 | 6 | AX351864 | AX351864 Sequence |
| 17 | 20 | 100.0 | 20 | 6 | AX351885 | AX351885 Sequence |
| 18 | 20 | 100.0 | 20 | 6 | AX351910 | AX351910 Sequence |
| 19 | 20 | 100.0 | 20 | 6 | AX352126 | AX352126 Sequence |
| 20 | 20 | 100.0 | 20 | 6 | AX352145 | AX352145 Sequence |
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| 22 | 20 | 100.0 | 20 | 6 | AX355583 | AX355583 Sequence |
| 23 | 20 | 100.0 | 20 | 6 | AX455619 | AX455619 Sequence |
| 24 | 20 | 100.0 | 20 | 6 | AX465348 | AX465348 Sequence |
| 25 | 20 | 100.0 | 20 | 6 | AX468486 | AX468486 Sequence |
| 26 | 20 | 100.0 | 20 | 6 | BD009091 | BD009091 Immunosti |
| 27 | 20 | 100.0 | 21 | 6 | AX352011 | AX352011 Sequence |
| 28 | 20 | 100.0 | 21 | 6 | AX352030 | AX352030 Sequence |
| 29 | 20 | 100.0 | 22 | 6 | AX352049 | AX352049 Sequence |
| 30 | 20 | 100.0 | 24 | 6 | AX351931 | AX351931 Sequence |
| 31 | 20 | 100.0 | 26 | 6 | AX351754 | AX351754 Sequence |
| 32 | 20 | 100.0 | 28 | 6 | AX104124 | AX104124 Sequence |
| 33 | 20 | 100.0 | 28 | 6 | AX351775 | AX351775 Sequence |
| 34 | 20 | 100.0 | 28 | 6 | AX351794 | AX351794 Sequence |
| 35 | 20 | 100.0 | 28 | 6 | AX351952 | AX351952 Sequence |
| 36 | 20 | 100.0 | 28 | 6 | AX352088 | AX352088 Sequence |
| 37 | 20 | 100.0 | 28 | 6 | AX352107 | AX352107 Sequence |
| 38 | 20 | 100.0 | 28 | 6 | AX355104 | AX355104 Sequence |
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| 40 | 20 | 100.0 | 33 | 6 | AX352184 | AX352184 Sequence |
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| 42 | 20 | 100.0 | 37 | 6 | AX352069 | AX352069 Sequence |
| 43 | 20 | 100.0 | 40 | 6 | AX352163 | AX352163 Sequence |
| 44 | 20 | 100.0 | 40 | 6 | AX352164 | AX352164 Sequence |
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ALIGNMENTS

RESULT 1
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LOCUS AR140484 20 bp DNA linear PAT 16-JUN-2001
DEFINITION Sequence 43 from patent US 6207646.
ACCESSION AR140484
VERSION AR140484.1 GI:14482980
KEYWORDS .
SOURCE Unknown.
ORGANISM Unknown.
Unclassified.
REFERENCE 1 (bases 1 to 20)
AUTHORS Krieg,A.M., Kline,J., Klinman,D. and Steinberg,A.D.
TITLE Immunostimulatory nucleic acid molecules
JOURNAL Patent: US 6207646-A 43 27-MAR-2001;
FEATURES Location/Qualifiers

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Db      1 TCCATGTCGTTCCTGATGCT 20


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DEFINITION  Sequence 53 from patent US 6207646.
ACCESSION   AR140494
VERSION     AR140494.1  GI:14482990
KEYWORDS    .
SOURCE      Unknown.
  ORGANISM  Unknown.
            Unclassified.
REFERENCE   1  (bases 1 to 20)
  AUTHORS   Krieg,A.M., Kline,J., Klinman,D. and Steinberg,A.D.
  TITLE     Immunostimulatory nucleic acid molecules
  JOURNAL   Patent: US 6207646-A 53 27-MAR-2001;
FEATURES             Location/Qualifiers
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          ||||||||||||||||||||
Db      1 TCCATGTCGTTCCTGATGCT 20


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LOCUS       AR146336                  20 bp    DNA     linear   PAT 08-AUG-2001
DEFINITION  Sequence 48 from patent US 6218371.
ACCESSION   AR146336
VERSION     AR146336.1  GI:15109525
KEYWORDS    .
SOURCE      Unknown.
  ORGANISM  Unknown.
            Unclassified.
REFERENCE   1  (bases 1 to 20)
  AUTHORS   Krieg,A.M. and Weiner,G.
  TITLE     Methods and products for stimulating the immune system using
            immunotherapeutic oligonucleotides and cytokines
  JOURNAL   Patent: US 6218371-A 48 17-APR-2001;
FEATURES             Location/Qualifiers
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BASE COUNT        2 a      6 c      4 g      8 t
ORIGIN

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Db      1 TCCATGTCGTTCCTGATGCT 20


RESULT 4
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LOCUS       AR146344                  20 bp    DNA     linear   PAT 08-AUG-2001
DEFINITION  Sequence 56 from patent US 6218371.
ACCESSION   AR146344
VERSION     AR146344.1  GI:15109533
KEYWORDS    .
SOURCE      Unknown.
  ORGANISM  Unknown.
            Unclassified.
REFERENCE   1  (bases 1 to 20)
  AUTHORS   Krieg,A.M. and Weiner,G.
  TITLE     Methods and products for stimulating the immune system using
            immunotherapeutic oligonucleotides and cytokines
  JOURNAL   Patent: US 6218371-A 56 17-APR-2001;
FEATURES             Location/Qualifiers
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BASE COUNT        2 a      6 c      4 g      8 t
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DEFINITION  Sequence 57 from patent US 6218371.
ACCESSION   AR146345
VERSION     AR146345.1  GI:15109534
KEYWORDS    .
SOURCE      Unknown.
  ORGANISM  Unknown.
            Unclassified.
REFERENCE   1  (bases 1 to 20)
  AUTHORS   Krieg,A.M. and Weiner,G.
  TITLE     Methods and products for stimulating the immune system using
            immunotherapeutic oligonucleotides and cytokines
  JOURNAL   Patent: US 6218371-A 57 17-APR-2001;
FEATURES             Location/Qualifiers
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DEFINITION  Sequence 38 from patent US 6239116.
ACCESSION   AR154709
VERSION     AR154709.1  GI:15122762
KEYWORDS    .
SOURCE      Unknown.
  ORGANISM  Unknown.
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REFERENCE   1  (bases 1 to 20)
  AUTHORS   Krieg,A.M. and Kline,J.N.
  TITLE     Immunostimulatory nucleic acid molecules
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  JOURNAL   Patent: US 6239116-A 38 29-MAY-2001;
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Db      1 TCCATGTCGTTCCTGATGCT 20


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LOCUS       AR182899                 20 bp    DNA     linear   PAT 20-APR-2002
DEFINITION  Sequence 71 from patent US 6339068.
ACCESSION   AR182899
VERSION     AR182899.1  GI:20226106
KEYWORDS    .
SOURCE      Unknown.
  ORGANISM  Unknown.
            Unclassified.
REFERENCE   1  (bases 1 to 20)
  AUTHORS   Krieg,A.M., Davis,H.L., Wu,T. and Schorr,J.
  TITLE     Vectors and methods for immunization or therapeutic protocols
  JOURNAL   Patent: US 6339068-A 71 15-JAN-2002;
FEATURES             Location/Qualifiers
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Db      1 TCCATGTCGTTCCTGATGCT 20


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LOCUS       AX045773                 20 bp    DNA     linear   PAT 24-NOV-2000
DEFINITION  Sequence 3 from Patent WO0067023.
ACCESSION   AX045773
VERSION     AX045773.1  GI:11344140
KEYWORDS    .
SOURCE      synthetic construct.
  ORGANISM  synthetic construct
            artificial sequences.
REFERENCE   1  (bases 1 to 20)
  AUTHORS   Noll,B.O., Schetter,C. and Krieg,A.M.
  TITLE     Screening for immunostimulatory dna functional modifyers
  JOURNAL   Patent: WO 0067023-A 3 09-NOV-2000;
            CPG Immunopharmaceuticals GmbH (DE) ; UNIVERSITY OF IOWA RESEARCH
            FOUNDATION (US)
FEATURES             Location/Qualifiers
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Db      1 TCCATGTCGTTCCTGATGCT 20


RESULT 9
AX045774
LOCUS       AX045774                 20 bp    DNA     linear   PAT 24-NOV-2000
DEFINITION  Sequence 4 from Patent WO0067023.
ACCESSION   AX045774
VERSION     AX045774.1  GI:11344141
KEYWORDS    .
SOURCE      synthetic construct.
  ORGANISM  synthetic construct
            artificial sequences.
REFERENCE   1  (bases 1 to 20)
  AUTHORS   Noll,B.O., Schetter,C. and Krieg,A.M.
  TITLE     Screening for immunostimulatory dna functional modifyers
  JOURNAL   Patent: WO 0067023-A 4 09-NOV-2000;
            CPG Immunopharmaceuticals GmbH (DE) ; UNIVERSITY OF IOWA RESEARCH
            FOUNDATION (US)
FEATURES             Location/Qualifiers
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RESULT 10
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LOCUS       AX103944                 20 bp    DNA     linear   PAT 30-APR-2001
DEFINITION  Sequence 136 from Patent WO0122972.
ACCESSION   AX103944
VERSION     AX103944.1  GI:13920141
KEYWORDS    .
SOURCE      synthetic construct.
  ORGANISM  synthetic construct
            artificial sequences.
REFERENCE   1  (bases 1 to 20)
  AUTHORS   Krieg,A.M., Schetter,C. and Vollmer,J.C.
  TITLE     Immunostimulatory nucleic acids
  JOURNAL   Patent: WO 0122972-A 136 05-APR-2001;
            UNIVERSITY OF IOWA RESEARCH FOUNDATION (US) ; Coley Pharmaceutical
            GmbH (DE)
FEATURES             Location/Qualifiers
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RESULT 11
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LOCUS       AX104567                 20 bp    DNA     linear   PAT 30-APR-2001
DEFINITION  Sequence 759 from Patent WO0122972.
ACCESSION   AX104567
VERSION     AX104567.1  GI:13920764
KEYWORDS    .
SOURCE      synthetic construct.
  ORGANISM  synthetic construct
            artificial sequences.
REFERENCE   1  (bases 1 to 20)
  AUTHORS   Krieg,A.M., Schetter,C. and Vollmer,J.C.
  TITLE     Immunostimulatory nucleic acids
  JOURNAL   Patent: WO 0122972-A 759 05-APR-2001;
            UNIVERSITY OF IOWA RESEARCH FOUNDATION (US) ; Coley Pharmaceutical
            GmbH (DE)
FEATURES             Location/Qualifiers
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Qy      1 TCCATGTCGTTCCTGATGCT 20
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Db      1 TCCATGTCGTTCCTGATGCT 20


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AX135637
LOCUS       AX135637                 20 bp    DNA     linear   PAT 29-MAY-2001
DEFINITION  Sequence 8 from Patent WO0132877.
ACCESSION   AX135637
VERSION     AX135637.1  GI:14271907
KEYWORDS    .
SOURCE      synthetic construct.
  ORGANISM  synthetic construct
            artificial sequences.
REFERENCE   1  (bases 1 to 20)
  AUTHORS   Mackichan,M.L.
  TITLE     Cpg receptor (cpg-r) and methods relating thereto
  JOURNAL   Patent: WO 0132877-A 8 10-MAY-2001;
            CHIRON CORPORATION (US)
FEATURES             Location/Qualifiers
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Db      1 TCCATGTCGTTCCTGATGCT 20


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LOCUS       AX351747                 20 bp    DNA     linear   PAT 06-FEB-2002
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ACCESSION   AX351747
VERSION     AX351747.1  GI:18617030
KEYWORDS    .
SOURCE      synthetic construct.
  ORGANISM  synthetic construct
            artificial sequences.
REFERENCE   1
  AUTHORS   Mond,J.J., Flora,M. and Klinman,D.M.
  TITLE     Immunostimulatory rna/dna hybrid molecules
  JOURNAL   Patent: WO 0193902-A 43 13-DEC-2001;
            Biosynexus Incorporated (US)
FEATURES             Location/Qualifiers
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DEFINITION  Sequence 109 from Patent WO0193902.
ACCESSION   AX351813
VERSION     AX351813.1  GI:18617096
KEYWORDS    .
SOURCE      synthetic construct.
  ORGANISM  synthetic construct
            artificial sequences.
REFERENCE   1
  AUTHORS   Mond,J.J., Flora,M. and Klinman,D.M.
  TITLE     Immunostimulatory rna/dna hybrid molecules
  JOURNAL   Patent: WO 0193902-A 109 13-DEC-2001;
            Biosynexus Incorporated (US)
FEATURES             Location/Qualifiers
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Db      1 TCCATGTCGTTCCTGATGCT 20


RESULT 15
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LOCUS       AX351836                 20 bp    DNA     linear   PAT 06-FEB-2002
DEFINITION  Sequence 132 from Patent WO0193902.
ACCESSION   AX351836
VERSION     AX351836.1  GI:18617119
KEYWORDS    .
SOURCE      synthetic construct.
  ORGANISM  synthetic construct
            artificial sequences.
REFERENCE   1
  AUTHORS   Mond,J.J., Flora,M. and Klinman,D.M.
  TITLE     Immunostimulatory rna/dna hybrid molecules
  JOURNAL   Patent: WO 0193902-A 132 13-DEC-2001;
            Biosynexus Incorporated (US)
FEATURES             Location/Qualifiers
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Db      1 TCCATGTCGTTCCTGATGCT 20
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GenCore version 5.1.4_p5_4578


OM nucleic - nucleic search, using sw model

Run on: March 1, 2003, 21:11:41 ; Search time 143.75 Seconds
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Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

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| | 6 | 20 | 100.0 | 20 | 20 | AAZ41903 | IL-12 secretion in |
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| | 8 | 20 | 100.0 | 20 | 21 | AAA63585 | Immune stimulatory |
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| | 11 | 20 | 100.0 | 20 | 21 | AAZ47641 | Parasitic infectio |
| | 12 | 20 | 100.0 | 20 | 21 | AAZ47848 | Immunostimulatory |
| | 13 | 20 | 100.0 | 20 | 21 | AAZ47970 | Immune remodeling |
| | 14 | 20 | 100.0 | 20 | 21 | AAZ47978 | Immune remodeling |
| | 15 | 20 | 100.0 | 20 | 21 | AAZ47979 | Immune remodeling |
| | 16 | 20 | 100.0 | 20 | 22 | AAH50608 | CpG motif related |
| | 17 | 20 | 100.0 | 20 | 22 | AAH20397 | CpG motif containi |
| c | 18 | 20 | 100.0 | 20 | 22 | AAF99011 | Immunostimulatory |
| | 19 | 20 | 100.0 | 20 | 22 | AAF99559 | Immunostimulatory |
| | 20 | 20 | 100.0 | 20 | 22 | AAC87224 | Immunostimulatory |
| | 21 | 20 | 100.0 | 20 | 22 | AAC87225 | Methylated CpG oli |
| | 22 | 20 | 100.0 | 20 | 22 | AAA92364 | CG motif and CFA c |
| | 23 | 20 | 100.0 | 20 | 22 | AAH19293 | CpG Oligonucleotid |
| | 24 | 20 | 100.0 | 20 | 22 | AAH19303 | Non CpG oligonucle |
| | 25 | 20 | 100.0 | 20 | 24 | AAL39221 | Murine Toll-like r |
| | 26 | 20 | 100.0 | 20 | 24 | ABK46426 | Immunostimulatory |
| | 27 | 20 | 100.0 | 20 | 24 | ABL35135 | Immunostimulatory |
| | 28 | 20 | 100.0 | 20 | 24 | ABL35199 | Immunostimulatory |
| | 29 | 20 | 100.0 | 20 | 24 | ABL35220 | Immunostimulatory |
| | 30 | 20 | 100.0 | 20 | 24 | ABL35246 | Immunostimulatory |
| | 31 | 20 | 100.0 | 20 | 24 | ABL35265 | Immunostimulatory |
| | 32 | 20 | 100.0 | 20 | 24 | ABL35288 | Immunostimulatory |
| | 33 | 20 | 100.0 | 20 | 24 | ABL35498 | Immunostimulatory |
| | 34 | 20 | 100.0 | 20 | 24 | ABL35515 | Immunostimulatory |
| c | 35 | 20 | 100.0 | 20 | 24 | ABL38700 | Immunostimulatory |
| | 36 | 20 | 100.0 | 20 | 24 | ABL39189 | Immunostimulatory |
| | 37 | 20 | 100.0 | 21 | 24 | ABL35387 | Immunostimulatory |
| | 38 | 20 | 100.0 | 21 | 24 | ABL35404 | Immunostimulatory |
| | 39 | 20 | 100.0 | 22 | 24 | ABL35423 | Immunostimulatory |
| | 40 | 20 | 100.0 | 24 | 24 | ABL35309 | Immunostimulatory |
| | 41 | 20 | 100.0 | 26 | 24 | ABL35142 | Immunostimulatory |
| | 42 | 20 | 100.0 | 28 | 22 | AAF99188 | Immunostimulatory |
| | 43 | 20 | 100.0 | 28 | 24 | ABL35163 | Immunostimulatory |
| | 44 | 20 | 100.0 | 28 | 24 | ABL35182 | Immunostimulatory |
| | 45 | 20 | 100.0 | 28 | 24 | ABL35330 | Immunostimulatory |

ALIGNMENTS

RESULT 1
AAV60952
ID AAV60952 standard; DNA; 20 BP.
XX
AC AAV60952;
XX
DT 14-DEC-1998 (first entry)
XX
DE Unmethylated cytosine-guanine dinucleotide containing oligonucleotide 3.
XX
KW ss; unmethylated CpG dinucleotide; immune response; natural killer cell;
KW Th2 response; Th1 response; Th1 cytokine; hepatitis B.
XX
OS Synthetic.
XX
PN WO9840100-A1.
XX
PD 17-SEP-1998.
XX
PF 10-MAR-1998; 98WO-US04703.
XX
PR 10-MAR-1997; 97US-0040376.
XX
PA (OTTA-) OTTAWA CIVIC LOEB RES INST.
PA (QIAG-) QIAGEN GMBH.
PA (IOWA ) UNIV IOWA RES FOUND.
XX
PI Davis HL, Krieg AM, Schorr J;
XX
DR WPI; 1998-520792/44.
XX
PT Use of oligonucleotides containing an unmethylated CpG dinucleotide

```
PT   - useful as, e.g. adjuvant with antigen, or nucleic acid encoding
PT   antigen for inducing immune response in subject
XX
PS   Disclosure; Page 12; 67pp; English.
XX
CC   Oligonucleotides containing at least 1 unmethylated CpG dinucleotide
CC   affect the immune response in a subject by activating natural killer
CC   cells or redirecting a subject's immune response from a Th2 to a Th1
CC   response by inducing monocytic and other cells to produce Th1 cytokines.
CC   These nucleic acids containing at least 1 unmethylated CpG can be used as
CC   an adjuvant, specifically to induce an immune response against an
CC   antigenic protein, and are used particularly for virally mediated
CC   disorders, e.g. hepatitis B virus infection.
XX
SQ   Sequence 20 BP; 2 A; 6 C; 4 G; 8 T; 0 other;

  Query Match             100.0%;  Score 20;  DB 19;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 3;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       1 TCCATGTCGTTCCTGATGCT 20
           ||||||||||||||||||||
Db       1 TCCATGTCGTTCCTGATGCT 20


RESULT 2
AAV47688
ID   AAV47688 standard; DNA; 20 BP.
XX
AC   AAV47688;
XX
DT   20-NOV-1998  (first entry)
XX
DE   Unmethylated CpG dinucleotide.
XX
KW   Unmethylated CpG dinucleotide; immune response; bacterial meningitis;
KW   natural killer cell activation; NK cell; Th2 response; neonatal sepsis;
KW   pulmonary disorder; asthma; environmentally induced airway disease;
KW   bacterial infection; endotoxaemia; therapy; cystic fibrosis;
KW   inflammatory bowel disease; ss.
XX
OS   Synthetic.
XX
PN   WO9837919-A1.
XX
PD   03-SEP-1998.
XX
PF   25-FEB-1998;   98WO-US03678.
XX
PR   28-FEB-1997;   97US-0039405.
XX
PA   (IOWA ) UNIV IOWA RES FOUND.
XX
PI   Krieg AM,  Schwartz DA;
XX
DR   WPI; 1998-480941/41.
XX
PT   Use of nucleic acids containing an unmethylated CpG - for treating a
PT   subject having or at risk of having an acute decrement in air flow
PT   or inhibiting an inflammatory response
XX
PS   Disclosure; Page 13; 65pp; English.
XX
CC   This sequence represents an unmethylated CpG dinucleotide, and can be
CC   used in the method of the invention. The method is for treating a subject
CC   having, or at risk of having an acute decrement in air flow, comprising
CC   administering a nucleic acid sequence containing at least one
CC   unmethylated CpG. The nucleic acids containing an unmethylated CpG
CC   dinucleotide affect an immune response in a subject by activating natural
CC   killer cells (NK) or redirecting a subject's immune response from a Th2
CC   to a Th1 response by inducing monocytic and other cells to produce Th1
CC   cytokines. They can be used to treat pulmonary disorders having an
CC   immunologic component, such as asthma or environmentally induced airway
CC   disease. They can also be used to treat diseases associated with
CC   Gram-positive bacterial infections or endotoxaemia including bacterial
CC   meningitis, neonatal sepsis, cystic fibrosis, inflammatory bowel disease
CC   and liver cirrhosis, Gram-negative pneumonia, Gram-negative abdominal
CC   abscess, haemorrhagic shock, disseminated intravascular coagulation, or
CC   an inflammatory response to lipopolysaccharide.
XX
SQ   Sequence 20 BP; 2 A; 6 C; 4 G; 8 T; 0 other;

  Query Match             100.0%;  Score 20;  DB 19;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 3;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       1 TCCATGTCGTTCCTGATGCT 20
           ||||||||||||||||||||
Db       1 TCCATGTCGTTCCTGATGCT 20


RESULT 3
AAV27707
ID   AAV27707 standard; DNA; 20 BP.
XX
AC   AAV27707;
XX
DT   01-OCT-1998  (first entry)
XX
DE   Immunostimulatory oligodeoxyribonucleotide of the invention.
XX
KW   Immunostimulatory; oligodeoxyribonucleotide; ODN;
KW   unmethylated CpG dinucleotide; activate; lymphocyte; immune response;
KW   Th2; Th1; cytokine; treatment; prevention; asthma; autoimmune disease;
KW   desensitisation therapy; artificial adjuvant; antibody generation; ss.
XX
OS   Synthetic.
XX
PN   WO9818810-A1.
XX
PD   07-MAY-1998.
XX
PF   30-OCT-1997;   97WO-US19791.
XX
PR   30-OCT-1996;   96US-0738652.
XX
PA   (IOWA ) UNIV IOWA RES FOUND.
XX
PI   Kline JN,  Krieg AM;
XX
DR   WPI; 1998-272127/24.
XX
PT   New immunostimulatory nucleic acid molecules - which contain at
PT   least one unmethylated CpG dinucleotide, used for treating e.g.
PT   tumours, infections or autoimmune disease
XX
PS   Disclosure; Page 28; 109pp; English.
XX
CC   AAV27641-751 represent immunostimulatory oligodeoxyribonucleotides
CC   (ODNs) of the invention. The ODNs contain at least one unmethylated CpG
CC   dinucleotide, and have the formula:
CC   5' N1X1CGX2N2 3', where at least one nucleotide separates consecutive
CC   CpGs, X1 is adenine, guanine, or thymine, X2 is cytosine or thymine, N
CC   is any nucleotide and N1+N2 is 0-26 bases with the provision that N1 and
CC   N2 does not contain a CCGG tetramer or more than one CCG or CGG trimer
CC   OR 5' NX1X2CGX3X4N 3', where at least one nucleotide separates
CC   consecutive CpGs, X1 and X2 are selected from GpT, GpG, GpA, ApT and ApA,
CC   X3and X4 are selected from TpT or CpT, N is any nucleotide and N1+N2 is
CC   0-26 bases with the provision that N1 and N2 does not contain a CCGG
CC   tetramer or more than one CCG or CGG trimer.
CC   The ODNs activate lymphocytes in a subject and redirect a subject's
CC   immune response from a Th2 to a Th1 (e.g. by inducing monocytic cells
CC   and other cells to produce Th1 cytokines, including IL-12, IFN-gamma and
CC   GM-CSF). The ODNs can be used to treat or prevent an asthmatic disorder,
CC   autoimmune diseases, in desensitisation therapy, as an artificial
CC   adjuvant during antibody generation in a mammal such as a mouse or a
```

CC human.
XX
SQ Sequence 20 BP; 2 A; 6 C; 4 G; 8 T; 0 other;

Query Match 100.0%; Score 20; DB 19; Length 20;
Best Local Similarity 100.0%; Pred. No. 3;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 TCCATGTCGTTCCTGATGCT 20
||||||||||||||||||||
Db 1 TCCATGTCGTTCCTGATGCT 20

RESULT 4
AAV27647
ID AAV27647 standard; DNA; 20 BP.
XX
AC AAV27647;
XX
DT 01-OCT-1998 (first entry)
XX
DE Immunostimulatory oligodeoxyribonucleotide of the invention.
XX
KW Immunostimulatory; oligodeoxyribonucleotide; ODN;
KW unmethylated CpG dinucleotide; activate; lymphocyte; immune response;
KW Th2; Th1; cytokine; treatment; prevention; asthma; autoimmune disease;
KW desensitisation therapy; artificial adjuvant; antibody generation; ss.
XX
OS Synthetic.
XX
PN WO9818810-A1.
XX
PD 07-MAY-1998.
XX
PF 30-OCT-1997; 97WO-US19791.
XX
PR 30-OCT-1996; 96US-0738652.
XX
PA (IOWA ) UNIV IOWA RES FOUND.
XX
PI Kline JN, Krieg AM;
XX
DR WPI; 1998-272127/24.
XX
PT New immunostimulatory nucleic acid molecules - which contain at
PT least one unmethylated CpG dinucleotide, used for treating e.g.
PT tumours, infections or autoimmune disease
XX
PS Claim 23; Page 82; 109pp; English.
XX
CC AAV27641-751 represent immunostimulatory oligodeoxyribonucleotides
CC (ODNs) of the invention. The ODNs contain at least one unmethylated CpG
CC dinucleotide, and have the formula:
CC 5' N1X1CGX2N2 3', where at least one nucleotide separates consecutive
CC CpGs, X1 is adenine, guanine, or thymine, X2 is cytosine or thymine, N
CC is any nucleotide and N1+N2 is 0-26 bases with the provision that N1 and
CC N2 does not contain a CCGG tetramer or more than one CCG or CGG trimer
CC OR 5' NX1X2CGX3X4N 3', where at least one nucleotide separates
CC consecutive CpGs, X1 and X2 are selected from GpT, GpG, GpA, ApT and ApA,
CC X3and X4 are selected from TpT or CpT, N is any nucleotide and N1+N2 is
CC 0-26 bases with the provision that N1 and N2 does not contain a CCGG
CC tetramer or more than one CCG or CGG trimer.
CC The ODNs activate lymphocytes in a subject and redirect a subject's
CC immune response from a Th2 to a Th1 (e.g. by inducing monocytic cells
CC and other cells to produce Th1 cytokines, including IL-12, IFN-gamma and
CC GM-CSF). The ODNs can be used to treat or prevent an asthmatic disorder,
CC autoimmune diseases, in desensitisation therapy, as an artificial
CC adjuvant during antibody generation in a mammal such as a mouse or a
CC human.
XX
SQ Sequence 20 BP; 2 A; 6 C; 4 G; 8 T; 0 other;

Query Match 100.0%; Score 20; DB 19; Length 20;
Best Local Similarity 100.0%; Pred. No. 3;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 TCCATGTCGTTCCTGATGCT 20
||||||||||||||||||||
Db 1 TCCATGTCGTTCCTGATGCT 20

RESULT 5
AAZ41894
ID AAZ41894 standard; DNA; 20 BP.
XX
AC AAZ41894;
XX
DT 24-JAN-2000 (first entry)
XX
DE IL-12 secretion inducing CpG oligonucleotide 39.
XX
KW CpG oligonucleotide; phosphorothioate; interleukin-12; IL-12; secretion;
KW human PBMC; immune response; cancer; HIV; bacterial disease; asthma;
KW neoplastic disorder; jaagsiekte; B cell; NK cell; ss; cytokine;
KW antigen presenting cell; infection; allergic disease.
XX
OS Synthetic.
XX
PN WO9951259-A2.
XX
PD 14-OCT-1999.
XX
PF 02-APR-1999; 99WO-US07335.
XX
PR 03-APR-1998; 98US-0080729.
XX
PA (IOWA ) UNIV IOWA RES FOUND.
XX
PI Krieg AM, Weiner G;
XX
DR WPI; 1999-620169/53.
XX
PT Novel synergistic combinations of immunostimulatory oligonucleotides
PT and immunopotentiating cytokines are useful for stimulating the immune
PT system -
XX
PS Example 8; Page 77; 91pp; English.
XX
CC Sequences AAZ41856-Z41949 are phosphorothioate CpG oligonucleotides
CC which are used in the invention to induce interleukin-12 (IL-12)
CC secretion from human PBMC. The invention comprises stimulating an immune
CC response in a subject comprising administering to a subject exposed to an
CC antigen, an immunopotentiating cytokine and an immunostimulatory CpG
CC oligonucleotide to induce a synergistic antigen specific immune
CC response. The methods are useful for treating cancer by stimulating an
CC antigen specific immune response against a cancer antigen. The methods
CC can also be used to treat neoplastic disorders in humans, including but
CC not limited to: sarcoma, carcinoma, fibroma, Lymphoma, melanoma,
CC neuroblastoma, retinoblastoma, and glioma. The methods are also useful
CC for treating infectious diseases, e.g. viral diseases such as HIV,
CC bacterial diseases, and fungal diseases. The methods may also be used to
CC treat allergic diseases, e.g. asthma. The methods and compositions may
CC also be applied to treat cancer and tumours in non human subjects,
CC e.g. cats and dogs. Neoplasias affecting agricultural livestock may also
CC be treated and include leukaemia, haemangiopericytoma and bovine ocular
CC neoplasia. Chronic, infectious, contagious diseases of sheep and goats
CC caused by the bacterium Corynebacterium pseudotuberculosis, and
CC contagious lung tumour of sheep caused by jaagsiekte may also be
CC treated. CpG oligonucleotides can be useful in activating B cells, NK
CC cells, and antigen presenting cells, such as monocytes and macrophages.
CC CpG oligonucleotides enhance antibody dependent cellular cytotoxicity and
CC can be used as an adjuvant in conjunction with tumour antigens to
CC protect against a tumour challenge.
XX
SQ Sequence 20 BP; 2 A; 6 C; 4 G; 8 T; 0 other;

```
  Query Match             100.0%;  Score 20;  DB 20;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 3;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       1 TCCATGTCGTTCCTGATGCT 20
           ||||||||||||||||||||
Db       1 TCCATGTCGTTCCTGATGCT 20
```

RESULT 6
AAZ41903
ID AAZ41903 standard; DNA; 20 BP.
XX
AC AAZ41903;
XX
DT 24-JAN-2000 (first entry)
XX
DE IL-12 secretion inducing CpG oligonucleotide 48.
XX
KW CpG oligonucleotide; phosphorothioate; interleukin-12; IL-12; secretion;
KW human PBMC; immune response; cancer; HIV; bacterial disease; asthma;
KW neoplastic disorder; jaagsiekte; B cell; NK cell; ss; cytokine;
KW antigen presenting cell; infection; allergic disease.
XX
OS Synthetic.
XX
PN WO9951259-A2.
XX
PD 14-OCT-1999.
XX
PF 02-APR-1999; 99WO-US07335.
XX
PR 03-APR-1998; 98US-0080729.
XX
PA (IOWA ) UNIV IOWA RES FOUND.
XX
PI Krieg AM, Weiner G;
XX
DR WPI; 1999-620169/53.
XX
PT Novel synergistic combinations of immunostimulatory oligonucleotides
PT and immunopotentiating cytokines are useful for stimulating the immune
PT system -
XX
PS Example 8; Page 79; 91pp; English.
XX
CC Sequences AAZ41856-Z41949 are phosphorothioate CpG oligonucleotides
CC which are used in the invention to induce interleukin-12 (IL-12)
CC secretion from human PBMC. The invention comprises stimulating an immune
CC response in a subject comprising administering to a subject exposed to an
CC antigen, an immunopotentiating cytokine and an immunostimulatory CpG
CC oligonucleotide to induce a synergistic antigen specific immune
CC response. The methods are useful for treating cancer by stimulating an
CC antigen specific immune response against a cancer antigen. The methods
CC can also be used to treat neoplastic disorders in humans, including but
CC not limited to: sarcoma, carcinoma, fibroma, Lymphoma, melanoma,
CC neuroblastoma, retinoblastoma, and glioma. The methods are also useful
CC for treating infectious diseases, e.g. viral diseases such as HIV,
CC bacterial diseases, and fungal diseases. The methods may also be used to
CC treat allergic diseases, e.g. asthma. The methods and compositions may
CC also be applied to treat cancer and tumours in non human subjects,
CC e.g. cats and dogs. Neoplasias affecting agricultural livestock may also
CC be treated and include leukaemia, haemangiopericytoma and bovine ocular
CC neoplasia. Chronic, infectious, contagious diseases of sheep and goats
CC caused by the bacterium Corynebacterium pseudotuberculosis, and
CC contagious lung tumour of sheep caused by jaagsiekte may also be
CC treated. CpG oligonucleotides can be useful in activating B cells, NK
CC cells, and antigen presenting cells, such as monocytes and macrophages.
CC CpG oligonucleotides enhance antibody dependent cellular cytotoxicity and
CC can be used as an adjuvant in conjunction with tumour antigens to
CC protect against a tumour challenge.
XX
SQ Sequence 20 BP; 2 A; 6 C; 4 G; 8 T; 0 other;

```
  Query Match             100.0%;  Score 20;  DB 20;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 3;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       1 TCCATGTCGTTCCTGATGCT 20
           ||||||||||||||||||||
Db       1 TCCATGTCGTTCCTGATGCT 20
```

RESULT 7
AAA90452
ID AAA90452 standard; DNA; 20 BP.
XX
AC AAA90452;
XX
DT 10-JAN-2001 (first entry)
XX
DE CpG adjuvant oligonucleotide, SEQ ID NO:6.
XX
KW CpG oligonucleotide; CpG motif; adjuvant; microdroplet emulsion;
KW microemulsion; adsorbent microparticle; vaccine; Th1 immune response;
KW viral infection; bacterial infection; parasitic infection; HCV; HBV;
KW hepatitis C virus; hepatitis B virus; herpes simplex virus; HSV; HIV;
KW human immunodeficiency virus; cytomegalovirus; CMV; influenza virus;
KW rabies virus; cholera; diphtheria; tetanus; pertussis;
KW Helicobacter pylori; Haemophilus influenzae; malaria; ss.
XX
OS Synthetic.
XX
PN WO200050006-A2.
XX
PD 31-AUG-2000.
XX
PF 09-FEB-2000; 2000WO-US03331.
XX
PR 26-FEB-1999; 99US-0121858.
PR 29-JUL-1999; 99US-0146391.
PR 28-OCT-1999; 99US-0161997.
XX
PA (CHIR ) CHIRON CORP.
XX
PI O'Hagan D, Ott GS, Donnelly J, Kazzaz J, Ugozzoli M, Singh M;
PI Barackman J;
XX
DR WPI; 2000-587123/55.
XX
PT Microemulsion having an adsorbent surface comprising a microdroplet
PT emulsion consisting of a metabolizable oil and an emulsifying agent
PT which is a detergent, useful as a vaccine to treat bacterial, viral,
PT and parasitic infection -
XX
PS Claim 17; Page 40; 95pp; English.
XX
CC The invention relates to a microdroplet emulsion (microemulsion) with an
CC adsorbent surface, and which comprises a metabolisable oil and an
CC emulsifying agent (a detergent). It also relates to a composition
CC comprising the microemulsion and a microparticle with an adsorbent
CC surface, where the microparticle comprises a polymer selected from a
CC poly(alpha-hydroxy acid), a polyhydroxy butyric acid, a
CC polycaprolactone, a polyorthoester, a polyanhydride, and a
CC polycyanoacrylate, and a second detergent. The surface of the
CC microparticles efficiently adsorb biologically active macromolecules such
CC as DNA, polypeptides, antigens, hormones, pharmaceuticals, enzymes,
CC mediators of transcription or translation, metabolic intermediates and
CC adjuvants. Additionally, a second biologically active molecule may be
CC encapsulated within the microparticle. The microemulsion can be used in
CC methods of immunising a host animal, particularly a human, against a
CC viral, bacterial or parasitic infection, and in methods of increasing a
CC Th1 immune response. The microemulsions (having the appropriate antigens
CC adsorbed) may be particularly used as vaccines for hepatitis C virus
CC (HCV), hepatitis B virus (HBV), herpes simplex virus (HSV), human
CC immunodeficiency virus (HIV), cytomegalovirus (CMV), influenza virus, and

```
CC   rabies virus; the bacteria which cause cholera, diphtheria, tetanus and
CC   pertussis; Helicobacter pylori and Haemophilus influenzae; and
CC   malaria-causing parasites. Sequences AAA90447-A90467 represent Th1
CC   lymphocyte stimulating oligonucleotides containing at least one CpG motif
CC   which are claimed for use as adjuvants in the compositions of the
CC   invention.
XX
SQ   Sequence 20 BP; 2 A; 6 C; 4 G; 8 T; 0 other;

  Query Match             100.0%;  Score 20;  DB 21;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 3;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGTCGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATGTCGTTCCTGATGCT 20


RESULT 8
AAA63585
ID   AAA63585 standard; DNA; 20 BP.
XX
AC   AAA63585;
XX
DT   04-DEC-2000  (first entry)
XX
DE   Immune stimulatory nucleic acid stimulating cytokine production.
XX
KW   Viral core antigen; HBcAg; hapten presentation; immune response;
KW   TH1 immune response; gene therapy; ss.
XX
OS   Unidentified.
XX
PN   WO200046365-A1.
XX
PD   10-AUG-2000.
XX
PF   02-FEB-2000; 2000WO-US02413.
XX
PR   02-FEB-1999;   99US-0118526.
XX
PA   (UYVI-) UNIV VIRGINIA COMMONWEALTH.
PA   (BIOC-) BIOCACHE PHARM LLC.
XX
PI   Coleman TP,  Peterson DL;
XX
DR   WPI; 2000-532900/48.
XX
PT   A composition useful for inducing an immune response comprises
PT   nucleocapsid protein monomers, derived from duck hepatitis B virus,
PT   which are assembled to form a particle -
XX
PS   Claim 7; Page 22; 67pp; English.
XX
CC   The present sequence represents an immune stimulatory nucleic acid,
CC   which is included in the particles of the invention. The structure of
CC   these particles is based in part on duck hepatitis B viral core antigen
CC   (HBcAg). The particles are used for hapten presentation so as to elicit
CC   an immune response. The particles are formed by assembling recombinant
CC   forms of duck HBcAg, and are highly immunmogenic. Native duck HBcAg
CC   particles are 32-34 nm particles composed of 240 identical subunit
CC   monomers, and are very similar to human HBcAg. However, duck HBcAg is
CC   not cross-reactive with human HBcAg. Recombinant forms of duck hepatitis
CC   B virus elicit a TH1 (T helper cell) immune response. The duck HBcAg
CC   particles are used to elicit an immune response in a patient.
CC   Polynucleotides encoding the particles may be used in gene therapy
CC   protocols.
XX
SQ   Sequence 20 BP; 2 A; 6 C; 4 G; 8 T; 0 other;

  Query Match             100.0%;  Score 20;  DB 21;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 3;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGTCGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATGTCGTTCCTGATGCT 20


RESULT 9
AAZ60973
ID   AAZ60973 standard; DNA; 20 BP.
XX
AC   AAZ60973;
XX
DT   30-MAY-2000  (first entry)
XX
DE   Nucleotide sequence of an immunostimulatory CpG oligonucleotide.
XX
KW   Immunostimulatory; stereoisomer; CpG oligonucleotide; Th2; Th1; asthma;
KW   allergic reaction; allergen; cancer antigen; cancer; immunoinhibitory;
KW   inflammatory disease; inflammatory bowel disease; autoimmune disease;
KW   gingivitis; psoriasis; sepsis; ss.
XX
OS   Synthetic.
XX
PN   WO200006588-A1.
XX
PD   10-FEB-2000.
XX
PF   27-JUL-1999;   99WO-US17100.
XX
PR   27-JUL-1998;   98US-0094370.
XX
PA   (IOWA ) UNIV IOWA RES FOUND.
PA   (CPGI-) CPG IMMUNOPHARMACEUTICALS INC.
XX
PI   Krieg AM;
XX
DR   WPI; 2000-195254/17.
XX
PT   Immunostimulatory and immunoinhibitory stereoisomers of CpG
PT   oligonucleotides useful for immunotherapy of cancer -
XX
PS   Disclosure; Page 11; 88pp; English.
XX
CC   AAZ60933-Z61015 represent immunostimulatory stereoisomers of CpG
CC   oligonucleotides. The sequences are derived from generic nucleic
CC   acid sequence, from which immunoinhibitory sequences may also be
CC   derived. The immunostimulatory nucleic acids can be co-administered
CC   with an antigen to induce an antigen-specific immune response. The
CC   immunostimulatory nucleic acids can also be used in methods for
CC   redirecting a subject's immune response from a Th2 to a Th1, for
CC   treating asthma, for desensitising a subject against the occurrence
CC   of an allergic reaction in response to contact with an allergen, for
CC   activating an immune cell, especially a lymphocyte or a dendritic cell
CC   expressing a cancer antigen or for treating cancer. The immunoinhibitory
CC   nucleic acid can be used to prevent an immune response, especially where
CC   the immune response in the subject is excessive due to having received
CC   an immune stimulating compound. The immunoinhibitory nucleic acid can
CC   be used to treat a subject having or at risk of an inflammatory disease,
CC   especially inflammatory bowel disease, autoimmune disease, gingivitis,
CC   psoriasis and sepsis.
XX
SQ   Sequence 20 BP; 2 A; 6 C; 4 G; 8 T; 0 other;

  Query Match             100.0%;  Score 20;  DB 21;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 3;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGTCGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATGTCGTTCCTGATGCT 20


RESULT 10
```

```
AAZ47634
ID   AAZ47634 standard; DNA; 20 BP.
XX
AC   AAZ47634;
XX
DT   01-MAR-2000  (first entry)
XX
DE   Parasitic infection preventing exemplary oligonucleotide SEQ ID NO:40.
XX
KW   Immune system; immunostimulatory; parasitic infection; parasite;
KW   CpG oligonucleotide; antigen presenting cell; natural killer cell;
KW   granulocyte; malaria; helminth disease; tick; mite; ss.
XX
OS   Synthetic.
XX
PN   WO9956755-A1.
XX
PD   11-NOV-1999.
XX
PF   06-MAY-1999;   99WO-US09863.
XX
PR   06-MAY-1998;   98US-0084512.
XX
PA   (IOWA ) UNIV IOWA RES FOUND.
PA   (OTTA-) OTTAWA CIVIC LOEB RES INST.
PA   (USNA ) US SEC OF NAVY.
XX
PI   Gramzinski RA,  Krieg AM,  Davis HL,  Hoffman SL;
XX
DR   WPI; 2000-062123/05.
XX
PT   Treating and preventing parasitic infections using CpG oligonucleotides
XX
PS   Disclosure; Page 20; 74pp; English.
XX
CC   The present invention describes a method for treating and preventing
CC   parasitic infection by administration of unmethylated CpG
CC   oligonucleotides. The CpG oligonucleotides are able to stimulate the
CC   innate immune system via the activation of immune cells, such as antigen
CC   presenting cells, natural killer cells and granulocytes. The CpG
CC   oligonucleotides and the method can be used to treat and prevent
CC   parasitic diseases, such as malaria, helminth diseases, tick and mites
CC   in humans, animals and poultry. The oligonucleotides may be administered
CC   in conjunction with parasiticides or other therapeutic compounds after
CC   an organism has been diagnosed to be infected with parasites. Diseases
CC   which can be treated or prevented include those caused by Plasmodium
CC   falciparum, P. ovale, P. malariae, P. vivax, P. knowlesi, Babesia
CC   microti, B. divergens, Trypanosoma cruzi, T. gambiense, T. rhodesiense,
CC   Schistosoma mansoni, Toxoplasma gondii, Trichinella spiralis, Leishmania
CC   major, L. donovani, L. braziliensis, and L. tropica. The parasite is
CC   especially capable of causing malaria. The present sequence represents
CC   a parasitic infection preventing exemplary oligonucleotide sequence from
CC   the present invention.
XX
SQ   Sequence 20 BP; 2 A; 6 C; 4 G; 8 T; 0 other;

  Query Match             100.0%;  Score 20;  DB 21;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 3;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       1 TCCATGTCGTTCCTGATGCT 20
           ||||||||||||||||||||
Db       1 TCCATGTCGTTCCTGATGCT 20


RESULT 11
AAZ47641
ID   AAZ47641 standard; DNA; 20 BP.
XX
AC   AAZ47641;
XX
DT   01-MAR-2000  (first entry)
XX
DE   Parasitic infection preventing exemplary oligonucleotide SEQ ID NO:47.
XX
KW   Immune system; immunostimulatory; parasitic infection; parasite;
KW   CpG oligonucleotide; antigen presenting cell; natural killer cell;
KW   granulocyte; malaria; helminth disease; tick; mite; ss.
XX
OS   Synthetic.
XX
PN   WO9956755-A1.
XX
PD   11-NOV-1999.
XX
PF   06-MAY-1999;   99WO-US09863.
XX
PR   06-MAY-1998;   98US-0084512.
XX
PA   (IOWA ) UNIV IOWA RES FOUND.
PA   (OTTA-) OTTAWA CIVIC LOEB RES INST.
PA   (USNA ) US SEC OF NAVY.
XX
PI   Gramzinski RA,  Krieg AM,  Davis HL,  Hoffman SL;
XX
DR   WPI; 2000-062123/05.
XX
PT   Treating and preventing parasitic infections using CpG oligonucleotides
XX
PS   Disclosure; Page 20; 74pp; English.
XX
CC   The present invention describes a method for treating and preventing
CC   parasitic infection by administration of unmethylated CpG
CC   oligonucleotides. The CpG oligonucleotides are able to stimulate the
CC   innate immune system via the activation of immune cells, such as antigen
CC   presenting cells, natural killer cells and granulocytes. The CpG
CC   oligonucleotides and the method can be used to treat and prevent
CC   parasitic diseases, such as malaria, helminth diseases, tick and mites
CC   in humans, animals and poultry. The oligonucleotides may be administered
CC   in conjunction with parasiticides or other therapeutic compounds after
CC   an organism has been diagnosed to be infected with parasites. Diseases
CC   which can be treated or prevented include those caused by Plasmodium
CC   falciparum, P. ovale, P. malariae, P. vivax, P. knowlesi, Babesia
CC   microti, B. divergens, Trypanosoma cruzi, T. gambiense, T. rhodesiense,
CC   Schistosoma mansoni, Toxoplasma gondii, Trichinella spiralis, Leishmania
CC   major, L. donovani, L. braziliensis, and L. tropica. The parasite is
CC   especially capable of causing malaria. The present sequence represents
CC   a parasitic infection preventing exemplary oligonucleotide sequence from
CC   the present invention.
XX
SQ   Sequence 20 BP; 2 A; 6 C; 4 G; 8 T; 0 other;

  Query Match             100.0%;  Score 20;  DB 21;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 3;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       1 TCCATGTCGTTCCTGATGCT 20
           ||||||||||||||||||||
Db       1 TCCATGTCGTTCCTGATGCT 20


RESULT 12
AAZ47848
ID   AAZ47848 standard; DNA; 20 BP.
XX
AC   AAZ47848;
XX
DT   07-MAR-2000  (first entry)
XX
DE   Immunostimulatory oligonucleotide sequence SEQ ID NO:49.
XX
KW   Mucosal immunity; immunostimulatory; CpG motif; immune response;
KW   antigen; allergic reaction; cancer; infectious disease; asthma; eczema;
KW   allergic rhinitis; coryza; hay fever; conjunctivitis; bronchial asthma;
KW   urticaria; food allergy; atopic condition; mucosal delivery; ss.
XX
```

OS Synthetic.
XX
PN WO9961056-A2.
XX
PD 02-DEC-1999.
XX
PF 21-MAY-1999; 99WO-US11359.
XX
PR 22-MAY-1998; 98US-0086393.
XX
PA (LOEB-) LOEB HEALTH RES INST AT OTTAWA HOSPITAL.
PA (CPGI-) CPG IMMUNOPHARMACEUTICALS INC.
XX
PI McCluskie MJ, Davis HL;
XX
DR WPI; 2000-062585/05.
XX
PT Use of CpG containing oligonucleotides as adjuvants for inducing an
PT immune response -
XX
PS Disclosure; Page 25; 116pp; English.
XX
CC The present invention describes a method using CpG containing
CC oligonucleotides (ONs) as adjuvants for inducing an immune response.
CC The method for inducing a mucosal immune response (MIR) comprises:
CC (1) administering to a mucosal surface of a subject an ON, having a
CC sequence including at least the formula (I); and (2) exposing the
CC subject to an antigen to induce the MIR, where the antigen is not
CC encoded in a nucleic acid vector: 5'X1X2CGX3X43' (I), where
CC C and G = unmethylated, and X1, X2, X3 and X4 = nucleotides. The method
CC can be used for treating a subject at risk of developing an allergic
CC reaction, cancer or infectious disease. It can be used for treating
CC asthmatic subjects, eczema, allergic rhinitis or coryza, hay fever,
CC conjunctivitis, bronchial asthma, urticaria, food allergies or other
CC atopic conditions. The antigen may be derived from infectious organisms
CC such as infectious bacteria, viruses, parasites or fungi. It can be used
CC in humans or animals, e.g. bovine, equine, feline, swine, aquatic or
CC avian species. The ONs act as potent mucosal adjuvants to induce immune
CC responses at both local and remote sites against an antigen
CC administered to the mucosal tissue. Both systemic and mucosal immunity
CC are induced by mucosal delivery of the ONs. AAZ47808 to AAZ47891
CC represent examples of immunostimulatory oligonucleotides given in the
CC present invention.
XX
SQ Sequence 20 BP; 2 A; 6 C; 4 G; 8 T; 0 other;

Query Match 100.0%; Score 20; DB 21; Length 20;
Best Local Similarity 100.0%; Pred. No. 3;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 TCCATGTCGTTCCTGATGCT 20
||||||||||||||||||||
Db 1 TCCATGTCGTTCCTGATGCT 20

RESULT 13
AAZ47970
ID AAZ47970 standard; DNA; 20 BP.
XX
AC AAZ47970;
XX
DT 08-MAR-2000 (first entry)
XX
DE Immune remodeling inducing CpG oligonucleotide SEQ ID NO:48.
XX
KW Haematopoiesis; regulation; CpG oligonucleotide; phosphorothioate;
KW immune remodeling; thrombopoiesis; anaemia; immune system; cancer;
KW immune response; allergic reaction; infectious disease; asthma;
KW thrombocytopaenia; immunohaemolytic disorder; genetic disorder;
KW haemoglobinopathy; kidney failure; chronic inflammatory disorder;
KW rheumatoid arthritis; ss.
XX
OS Synthetic.
XX
PN WO9958118-A2.
XX
PD 18-NOV-1999.
XX
PF 14-MAY-1999; 99WO-IB01285.
XX
PR 14-MAY-1998; 98US-0085516.
PR 02-FEB-1999; 99US-0241653.
XX
PA (CPGI-) CPG IMMUNOPHARMACEUTICALS GMBH.
PA (CPGI-) CPG IMMUNOPHARMACEUTICALS INC.
XX
PI Wagner H, Lipford G;
XX
DR WPI; 2000-062261/05.
XX
PT Use of CpG containing oligonucleotides for, e.g. inducing an
PT antigen-specific immune response -
XX
PS Example 1; Page 66; 116pp; English.
XX
CC The present invention describes a method using CpG containing
CC oligonucleotides (ONs) for regulating immune system remodeling and for
CC regulating haematopoiesis. The method for inducing an antigen-specific
CC immune response comprises: (1) administering an ON having a sequence
CC including at least the formula (I); and (2) exposing the subject to an
CC antigen at least 3 days after the ON is administered to the subject to
CC produce an antigen-specific immune response: 5' X1CGX2 3' (I), where
CC the ON = includes at least 8 nucleotides; C and G = unmethylated, and
CC X1 and X2 = nucleotides. The method can be used for inducing an immune
CC response against an antigen such as cells, cell extracts, proteins,
CC polysaccharides, polysaccharide conjugates, lipids, glycolipids,
CC carbohydrate, viral extracts, viruses, bacteria, fungi, parasites and
CC allergens. It can be used in a subject at risk of developing cancer or
CC an allergic reaction. It can also be used for treating an infectious
CC disease, allergic diseases and asthma, as well as thrombocytopaenia
CC which is drug-induced, due to an autoimmune disorder such as idiopathic
CC thrombocytopenic purpura, or resulting from accidental or therapeutic
CC radiation exposure. It can also be used for treating anaemia such as
CC drug-induced anaemia, immunohaemolytic disorder, genetic disorders such
CC as haemoglobinopathy and inherited haemolytic anaemia, inadequate
CC production despite adequate iron stores, chronic disease such as kidney
CC failure, and chronic inflammatory disorder such as rheumatoid arthritis,
CC or anaemia resulting from accidental or therapeutic radiation exposure.
CC AAZ47932 to AAZ48029 represent phosphorothioate CpG oligonucleotides
CC used in the exemplification of the present invention.
XX
SQ Sequence 20 BP; 2 A; 6 C; 4 G; 8 T; 0 other;

Query Match 100.0%; Score 20; DB 21; Length 20;
Best Local Similarity 100.0%; Pred. No. 3;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 TCCATGTCGTTCCTGATGCT 20
||||||||||||||||||||
Db 1 TCCATGTCGTTCCTGATGCT 20

RESULT 14
AAZ47978
ID AAZ47978 standard; DNA; 20 BP.
XX
AC AAZ47978;
XX
DT 08-MAR-2000 (first entry)
XX
DE Immune remodeling inducing CpG oligonucleotide SEQ ID NO:56.
XX
KW Haematopoiesis; regulation; CpG oligonucleotide; phosphorothioate;
KW immune remodeling; thrombopoiesis; anaemia; immune system; cancer;
KW immune response; allergic reaction; infectious disease; asthma;
KW thrombocytopaenia; immunohaemolytic disorder; genetic disorder;

KW haemoglobinopathy; kidney failure; chronic inflammatory disorder;
KW rheumatoid arthritis; ss.
XX
OS Synthetic.
XX
PN WO9958118-A2.
XX
PD 18-NOV-1999.
XX
PF 14-MAY-1999; 99WO-IB01285.
XX
PR 14-MAY-1998; 98US-0085516.
PR 02-FEB-1999; 99US-0241653.
XX
PA (CPGI-) CPG IMMUNOPHARMACEUTICALS GMBH.
PA (CPGI-) CPG IMMUNOPHARMACEUTICALS INC.
XX
PI Wagner H, Lipford G;
XX
DR WPI; 2000-062261/05.
XX
PT Use of CpG containing oligonucleotides for, e.g. inducing an
PT antigen-specific immune response -
XX
PS Example 1; Page 66; 116pp; English.
XX
CC The present invention describes a method using CpG containing
CC oligonucleotides (ONs) for regulating immune system remodeling and for
CC regulating haematopoiesis. The method for inducing an antigen-specific
CC immune response comprises: (1) administering an ON having a sequence
CC including at least the formula (I); and (2) exposing the subject to an
CC antigen at least 3 days after the ON is administered to the subject to
CC produce an antigen-specific immune response: 5' X1CGX2 3' (I), where
CC the ON = includes at least 8 nucleotides; C and G = unmethylated, and
CC X1 and X2 = nucleotides. The method can be used for inducing an immune
CC response against an antigen such as cells, cell extracts, proteins,
CC polysaccharides, polysaccharide conjugates, lipids, glycolipids,
CC carbohydrate, viral extracts, viruses, bacteria, fungi, parasites and
CC allergens. It can be used in a subject at risk of developing cancer or
CC an allergic reaction. It can also be used for treating an infectious
CC disease, allergic diseases and asthma, as well as thrombocytopaenia
CC which is drug-induced, due to an autoimmune disorder such as idiopathic
CC thrombocytopenic purpura, or resulting from accidental or therapeutic
CC radiation exposure. It can also be used for treating anaemia such as
CC drug-induced anaemia, immunohaemolytic disorder, genetic disorders such
CC as haemoglobinopathy and inherited haemolytic anaemia, inadequate
CC production despite adequate iron stores, chronic disease such as kidney
CC failure, and chronic inflammatory disorder such as rheumatoid arthritis,
CC or anaemia resulting from accidental or therapeutic radiation exposure.
CC AAZ47932 to AAZ48029 represent phosphorothioate CpG oligonucleotides
CC used in the exemplification of the present invention.
XX
SQ Sequence 20 BP; 2 A; 6 C; 4 G; 8 T; 0 other;

Query Match 100.0%; Score 20; DB 21; Length 20;
Best Local Similarity 100.0%; Pred. No. 3;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 TCCATGTCGTTCCTGATGCT 20
||||||||||||||||||||
Db 1 TCCATGTCGTTCCTGATGCT 20

RESULT 15
AAZ47979
ID AAZ47979 standard; DNA; 20 BP.
XX
AC AAZ47979;
XX
DT 08-MAR-2000 (first entry)
XX
DE Immune remodeling inducing CpG oligonucleotide SEQ ID NO:57.
XX

KW Haematopoiesis; regulation; CpG oligonucleotide; phosphorothioate;
KW immune remodeling; thrombopoiesis; anaemia; immune system; cancer;
KW immune response; allergic reaction; infectious disease; asthma;
KW thrombocytopaenia; immunohaemolytic disorder; genetic disorder;
KW haemoglobinopathy; kidney failure; chronic inflammatory disorder;
KW rheumatoid arthritis; ss.
XX
OS Synthetic.
XX
PN WO9958118-A2.
XX
PD 18-NOV-1999.
XX
PF 14-MAY-1999; 99WO-IB01285.
XX
PR 14-MAY-1998; 98US-0085516.
PR 02-FEB-1999; 99US-0241653.
XX
PA (CPGI-) CPG IMMUNOPHARMACEUTICALS GMBH.
PA (CPGI-) CPG IMMUNOPHARMACEUTICALS INC.
XX
PI Wagner H, Lipford G;
XX
DR WPI; 2000-062261/05.
XX
PT Use of CpG containing oligonucleotides for, e.g. inducing an
PT antigen-specific immune response -
XX
PS Example 1; Page 66; 116pp; English.
XX
CC The present invention describes a method using CpG containing
CC oligonucleotides (ONs) for regulating immune system remodeling and for
CC regulating haematopoiesis. The method for inducing an antigen-specific
CC immune response comprises: (1) administering an ON having a sequence
CC including at least the formula (I); and (2) exposing the subject to an
CC antigen at least 3 days after the ON is administered to the subject to
CC produce an antigen-specific immune response: 5' X1CGX2 3' (I), where
CC the ON = includes at least 8 nucleotides; C and G = unmethylated, and
CC X1 and X2 = nucleotides. The method can be used for inducing an immune
CC response against an antigen such as cells, cell extracts, proteins,
CC polysaccharides, polysaccharide conjugates, lipids, glycolipids,
CC carbohydrate, viral extracts, viruses, bacteria, fungi, parasites and
CC allergens. It can be used in a subject at risk of developing cancer or
CC an allergic reaction. It can also be used for treating an infectious
CC disease, allergic diseases and asthma, as well as thrombocytopaenia
CC which is drug-induced, due to an autoimmune disorder such as idiopathic
CC thrombocytopenic purpura, or resulting from accidental or therapeutic
CC radiation exposure. It can also be used for treating anaemia such as
CC drug-induced anaemia, immunohaemolytic disorder, genetic disorders such
CC as haemoglobinopathy and inherited haemolytic anaemia, inadequate
CC production despite adequate iron stores, chronic disease such as kidney
CC failure, and chronic inflammatory disorder such as rheumatoid arthritis,
CC or anaemia resulting from accidental or therapeutic radiation exposure.
CC AAZ47932 to AAZ48029 represent phosphorothioate CpG oligonucleotides
CC used in the exemplification of the present invention.
XX
SQ Sequence 20 BP; 2 A; 6 C; 4 G; 8 T; 0 other;

Query Match 100.0%; Score 20; DB 21; Length 20;
Best Local Similarity 100.0%; Pred. No. 3;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 TCCATGTCGTTCCTGATGCT 20
||||||||||||||||||||
Db 1 TCCATGTCGTTCCTGATGCT 20

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Job time : 143.75 secs

GenCore version 5.1.4_p5_4578


OM nucleic - nucleic search, using sw model

Run on: March 1, 2003, 22:50:16 ; Search time 1059.75 Seconds
(without alignments)
305.647 Million cell updates/sec

Title: US-09-818-918-43
Perfect score: 20
Sequence: 1 tccatgtcgttcctgatgct 20

Scoring table: IDENTITY_NUC
Gapop 10.0 , Gapext 1.0

Searched: 16154066 seqs, 8097743376 residues

Total number of hits satisfying chosen parameters: 357874

Minimum DB seq length: 0
Maximum DB seq length: 100

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

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2: em_esthum:*
3: em_estin:*
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9: gb_est1:*
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23: em_gss_mam:*
24: em_gss_mus:*
25: em_gss_other:*
26: em_gss_pro:*
27: em_gss_rod:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

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| c | 2 | 18.4 | 92.0 | 97 | 9 | AA082589 | AA082589 zn23g09.r |
| c | 3 | 15.2 | 76.0 | 90 | 9 | AI330737 | AI330737 fa92d05.y |
| | 4 | 14.2 | 71.0 | 63 | 9 | AU076705 | AU076705 AU076705 |
| c | 5 | 14.2 | 71.0 | 64 | 9 | AA675240 | AA675240 vq99e10.r |
| | 6 | 14.2 | 71.0 | 71 | 12 | BF733153 | BF733153 EST058 Hu |
| c | 7 | 14.2 | 71.0 | 100 | 9 | AL714425 | AL714425 AL714425 |
| c | 8 | 14.2 | 71.0 | 100 | 10 | BE064261 | BE064261 CM0-BT030 |
| c | 9 | 13.8 | 69.0 | 50 | 9 | AU105765 | AU105765 AU105765 |
| c | 10 | 13.8 | 69.0 | 85 | 9 | AA592095 | AA592095 vo14e07.r |
| | 11 | 13.8 | 69.0 | 94 | 14 | H55243 | H55243 CHR220182 C |
| | 12 | 13.6 | 68.0 | 46 | 9 | AA611416 | AA611416 vo51f04.r |
| | 13 | 13.6 | 68.0 | 80 | 17 | FR0032825 | AL029193 Fugu rubr |
| c | 14 | 13.6 | 68.0 | 88 | 17 | AF082885 | AF082885 AF082885 |
| | 15 | 13.6 | 68.0 | 89 | 17 | AZ305284 | AZ305284 1M0005I20 |
| c | 16 | 13.6 | 68.0 | 93 | 17 | BH613393 | BH613393 SALK_0341 |
| c | 17 | 13.6 | 68.0 | 100 | 12 | BE812976 | BE812976 RC2-AN006 |
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| | 19 | 13.2 | 66.0 | 70 | 9 | AA261488 | AA261488 mz89h07.r |
| | 20 | 13.2 | 66.0 | 76 | 9 | AA798408 | AA798408 vy06e06.r |
| | 21 | 13.2 | 66.0 | 81 | 17 | TA315A06Q | AL490407 T. brucei |
| | 22 | 13.2 | 66.0 | 87 | 10 | BE491972 | BE491972 GREB199 e |
| c | 23 | 13.2 | 66.0 | 91 | 14 | BQ087888 | BQ087888 rt10a08.y |
| c | 24 | 13.2 | 66.0 | 91 | 14 | BQ088095 | BQ088095 rt12d11.y |
| c | 25 | 13.2 | 66.0 | 91 | 14 | BQ088358 | BQ088358 rt15g09.y |
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| c | 27 | 13.2 | 66.0 | 95 | 14 | BQ125200 | BQ125200 pb33b02.y |
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| c | 29 | 13.2 | 66.0 | 96 | 14 | BQ088012 | BQ088012 rt11e03.y |
| c | 30 | 13.2 | 66.0 | 96 | 14 | BQ088308 | BQ088308 rt15b05.y |
| c | 31 | 13.2 | 66.0 | 97 | 14 | BQ087955 | BQ087955 rt10g11.y |
| c | 32 | 13.2 | 66.0 | 97 | 14 | BQ667544 | BQ667544 pb55a06.y |
| c | 33 | 13.2 | 66.0 | 98 | 14 | BQ087795 | BQ087795 rt08h11.y |
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| c | 42 | 12.8 | 64.0 | 100 | 13 | BI054599 | BI054599 MR3-GN035 |
| | 43 | 12.6 | 63.0 | 22 | 9 | AA894398 | AA894398 of85h01.s |
| | 44 | 12.6 | 63.0 | 47 | 12 | BE866303 | BE866303 601678950 |
| c | 45 | 12.6 | 63.0 | 50 | 9 | AU105783 | AU105783 AU105783 |

ALIGNMENTS

RESULT 1
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LOCUS AA855652 70 bp mRNA linear EST 06-MAR-1998
DEFINITION vw70g01.r1 Stratagene mouse heart (#937316) Mus musculus cDNA clone IMAGE:1260336 5' similar to gb:M11301 Mouse (MOUSE);, mRNA sequence.
ACCESSION AA855652
VERSION AA855652.1 GI:2943190
KEYWORDS EST.
SOURCE house mouse.
ORGANISM Mus musculus
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
REFERENCE 1 (bases 1 to 70)
AUTHORS Marra,M., Hillier,L., Allen,M., Bowles,M., Dietrich,N., Dubuque,T., Geisel,S., Kucaba,T., Lacy,M., Le,M., Martin,J., Morris,M., Schellenberg,K., Steptoe,M., Tan,F., Underwood,K., Moore,B., Theising,B., Wylie,T., Lennon,G., Soares,B., Wilson,R. and Waterston,R.
TITLE The WashU-HHMI Mouse EST Project
JOURNAL Unpublished (1996)
COMMENT Contact: Marra M/Mouse EST Project
WashU-HHMI Mouse EST Project
Washington University School of MedicineP
4444 Forest Park Parkway, Box 8501, St. Louis, MO 63108
Tel: 314 286 1800
Fax: 314 286 1810
Email: mouseest@watson.wustl.edu
This clone is available royalty-free through LLNL ; contact the

```
            IMAGE Consortium (info@image.llnl.gov) for further information.
            MGI:662888
            Seq primer: -28m13 rev1 ET from Amersham
            High quality sequence stop: 19.
FEATURES              Location/Qualifiers
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                      /organism="Mus musculus"
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                      /db_xref="taxon:10090"
                      /clone="IMAGE:1260336"
                      /clone_lib="Stratagene mouse heart (#937316)"
                      /sex="pooled"
                      /tissue_type="heart"
                      /dev_stage="13 day embryos"
                      /lab_host="SOLR (kanamycin resistant)"
                      /note="Organ: heart; Vector: pBluescript SK-; Site_1:
                      EcoRI; Site_2: XhoI; Cloned unidirectionally.  Primer:
                      Oligo dT. 93 pooled NIH/Swiss 13 day embryo hearts.
                      Average insert size: 1.0 kb; Uni-ZAP XR Vector; ~5'
                      adaptor sequence: 5' GAATTCGGCACGAG 3' ~3' adaptor
                      sequence: 5' CTCGAGTTTTTTTTTTTTTTTTT 3'"
BASE COUNT       20 a     22 c     17 g     11 t
ORIGIN

  Query Match             92.0%;  Score 18.4;  DB 9;  Length 70;
  Best Local Similarity   95.0%;  Pred. No. 2e+02;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy       1 TCCATGTCGTTCCTGATGCT 20
           ||||||||| ||||||||||
Db      36 TCCATGTCGGTCCTGATGCT 17


RESULT 2
AA082589/c
LOCUS       AA082589                 97 bp    mRNA    linear   EST 23-DEC-1997
DEFINITION  zn23g09.r1 Stratagene neuroepithelium NT2RAMI 937234 Homo sapiens
            cDNA clone IMAGE:548320 5' similar to TR:G387484 G387484 POL
            PROTEIN ;, mRNA sequence.
ACCESSION   AA082589
VERSION     AA082589.1  GI:1624648
KEYWORDS    EST.
SOURCE      human.
  ORGANISM  Homo sapiens
            Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
            Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
REFERENCE   1  (bases 1 to 97)
  AUTHORS   Hillier,L., Lennon,G., Becker,M., Bonaldo,M.F., Chiapelli,B.,
            Chissoe,S., Dietrich,N., DuBuque,T., Favello,A., Gish,W., Hawkins
            ,M., Hultman,M., Kucaba,T., Lacy,M., Le,M., Le,N., Mardis,E., Moore
            ,B., Morris,M., Parsons,J., Prange,C., Rifkin,L., Rohlfing,T.,
            Schellenberg,K., Soares,M.B., Tan,F., Thierry-Meg,J., Trevaskis,E.,
            Underwood,K., Wohldmann,P., Waterston,R., Wilson,R. and Marra,M.
  TITLE     Generation and analysis of 280,000 human expressed sequence tags
  JOURNAL   Genome Res. 6 (9), 807-828 (1996)
  MEDLINE   97044478
COMMENT     Contact: Wilson RK
            Washington University School of Medicine
            4444 Forest Park Parkway, Box 8501, St. Louis, MO 63108
            Tel: 314 286 1800
            Fax: 314 286 1810
            Email: est@watson.wustl.edu
            WARNING: There is evidence that suggests that the 384-well parent
            plate of this clone contains both human and mouse derived clones.
            Thus, the origin of this clone is uncertain. This caution should be
            kept in mind should you use this clone.

            This clone is available royalty-free through LLNL ; contact the
            IMAGE Consortium (info@image.llnl.gov) for further information.
            Trace considered overall poor quality
            Possible reversed clone: similarity on wrong strand
            Seq primer: -28M13 rev2 from Amersham
            High quality sequence stop: 1.
FEATURES              Location/Qualifiers
     source           1. .97
                      /organism="Homo sapiens"
                      /db_xref="GDB:3926836"
                      /db_xref="taxon:9606"
                      /clone="IMAGE:548320"
                      /clone_lib="Stratagene neuroepithelium NT2RAMI 937234"
                      /dev_stage="Ntera-2/RA+MI neuroepithelial cells"
                      /lab_host="SOLR (kanamycin resistant)"
                      /note="Vector: pBluescript SK-; Site_1: EcoRI; Site_2:
                      XhoI; Cloned unidirectionally.  Primer: Oligo dT. NT2
                      (Ntera-2/c1.D1)  precursor cells induced with Retinoic
                      Acid for 1 week, followed by 3 weeks in mitotic inhibitors
                      (Replate #2). Average insert size: 1.1 kb; Uni-ZAP XR
                      Vector; ~5' adaptor sequence: 5' GAATTCGGCACGAG 3' ~3'
                      adaptor sequence: 5' CTCGAGTTTTTTTTTTTTTTTT 3'"
BASE COUNT       24 a     31 c     23 g     11 t      8 others
ORIGIN

  Query Match             92.0%;  Score 18.4;  DB 9;  Length 97;
  Best Local Similarity   95.0%;  Pred. No. 2.2e+02;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy       1 TCCATGTCGTTCCTGATGCT 20
           ||||||||| ||||||||||
Db      44 TCCATGTCGGTCCTGATGCT 25


RESULT 3
AI330737/c
LOCUS       AI330737                 90 bp    mRNA    linear   EST 28-DEC-1998
DEFINITION  fa92d05.y1 zebrafish fin day1 regeneration Danio rerio cDNA 5'
            similar to gb:X79535 TUBULIN BETA-2 CHAIN (HUMAN);, mRNA sequence.
ACCESSION   AI330737
VERSION     AI330737.1  GI:4067296
KEYWORDS    EST.
SOURCE      zebrafish.
  ORGANISM  Danio rerio
            Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
            Actinopterygii; Neopterygii; Teleostei; Ostariophysi; Cypriniformes
            ; Cyprinidae; Danio.
REFERENCE   1  (bases 1 to 90)
  AUTHORS   Clark,M., Johnson,S.L., Lehrach,H., Lee,R., Li,F., Marra,M., Eddy
            ,S., Hillier,L., Kucaba,T., Martin,J., Beck,C., Wylie,T., Underwood
            ,K., Steptoe,M., Theising,B., Allen,M., Bowers,Y., Person,B.,
            Swaller,T., Gibbons,M., Pape,D., Harvey,N., Schurk,R., Ritter,E.,
            Kohn,S., Shin,T., Jackson,Y., Cardenas,M., McCann,R., Waterston,R.
            and Wilson,R.
  TITLE     WashU Zebrafish EST Project 1998
  JOURNAL   Unpublished (1998)
COMMENT     Contact: Stephen L. Johnson
            Washington University School of Medicine
            4444 Forest Park Parkway, Box 8501, St. Louis, MO 63108, USA
            Tel: 314 286 1800
            Fax: 314 286 1810
            Email: zbrafish@watson.wustl.edu
            cDNA Library Preparation: Raymond Lee. cDNA Library Arrayed by:
            Matthew Clark. DNA Sequencing by: Washington University Genome
            Sequencing Center Clone distribution: Genome Systems, St. Louis,
            Missouri (web address: www.genomesystems.com) (email contact:
            info@genomesystems.com) and Research Genetics, Huntsville, Alabama
            (web address: www.resgen.com) (email contact: info@resgen.com) and
            RessourcenZentrumPrimarDatenbank, Berlin, Germany (web address:
            www.rzpd.de)
            Trace considered overall poor quality
            Seq primer: T3 ET from Amersham
            High quality sequence stop: 1.
FEATURES              Location/Qualifiers
     source           1. .90
                      /organism="Danio rerio"
                      /db_xref="taxon:7955"
                      /clone_lib="zebrafish fin day1 regeneration"
                      /sex="mixed male and female"
```

/tissue_type="1 day fin regenerates"
/lab_host="E. coli XLOLR"
/note="Vector: pBK-CMV; Site_1: EcoRI; Site_2: XhoI; 1st strand cDNA primed with (GA)10ACTAGTCTCGAG(T)18, followed by second strand synthesis, and ligated to 5' adapter (5' )-aattcggcacgag- 3', 3'-gccgtgctc-5'. cDNA was cloned directionally (EcoRI/XhoI) into Stratagene Zap express lambda phage arms. Mass invivo excision done to obtain inserts in pBK-CMV phagemid."

BASE COUNT 27 a 27 c 24 g 12 t
ORIGIN

Query Match 76.0%; Score 15.2; DB 9; Length 90;
Best Local Similarity 85.0%; Pred. No. 6e+03;
Matches 17; Conservative 0; Mismatches 3; Indels 0; Gaps 0;

```
Qy      1 TCCATGTCGTTCCTGATGCT 20
          |||| ||||||| || ||||
Db     53 TCCAGGTCGTTCATGTTGCT 34
```

RESULT 4
AU076705
LOCUS AU076705 63 bp mRNA linear EST 04-MAY-2000
DEFINITION AU076705 Sugano cDNA library Homo sapiens cDNA clone HlvA0036 similar to 5'-end region of Human D-dopachrome tautomerase mRNA, mRNA sequence.
ACCESSION AU076705
VERSION AU076705.1 GI:7439194
KEYWORDS EST.
SOURCE human.
ORGANISM Homo sapiens
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
REFERENCE 1 (bases 1 to 63)
AUTHORS Suzuki,Y., Ishihara,D., Sasaki,M., Nakagawa,H., Hata,H., Tsunoda,T., Watanabe,M., Komatsu,T., Ota,T., Isogai,T., Suyama,A. and Sugano,S.
TITLE Statistical analysis of the 5' untranslated region of human mRNA using 'Oligo-Capped' cDNA libraries
JOURNAL Genomics 64 (3), 286-297 (2000)
MEDLINE 20221373
COMMENT Contact: Yutaka Suzuki
Department of Virology
Institute of Medical Science, University of Tokyo
4-6-1, Shirokanedai, Minatoku, Tokyo 108-8639, Japan
Email: ysuzuki@ims.u-tokyo.ac.jp
Suzuki,Y., Yoshitomo-Nakagawa,K., Maruyama,K., Suyama,A. and Sugano,S. Construction and characterization of a full length-enriched and a 5'-end-enriched cDNA library. Gene 200 (1-2), 149-156 (1997)
This clone was obtained from a 'full length-enriched' cDNA library constructed by 'Oligo-Capping' method. The coding region starts from the 50 bp upstream to the 3'-end.

FEATURES Location/Qualifiers
source 1. .63
/organism="Homo sapiens"
/db_xref="taxon:9606"
/clone="HlvA0036"
/clone_lib="Sugano cDNA library"
/note="The cDNA was prepared using the anchor primer, H-T11G, from Genhunter"

BASE COUNT 10 a 26 c 16 g 11 t
ORIGIN

Query Match 71.0%; Score 14.2; DB 9; Length 63;
Best Local Similarity 84.2%; Pred. No. 1.5e+04;
Matches 16; Conservative 0; Mismatches 3; Indels 0; Gaps 0;

```
Qy      2 CCATGTCGTTCCTGATGCT 20
          ||||| ||||||||  |||
Db     12 CCATGCCGTTCCTGGAGCT 30
```

RESULT 5
AA675240/c
LOCUS AA675240 64 bp mRNA linear EST 28-NOV-1997
DEFINITION vq99e10.r1 Knowles Solter mouse blastocyst B3 Mus musculus cDNA clone IMAGE:1110474 5' similar to gb:X79535 TUBULIN BETA-2 CHAIN (HUMAN); gb:M28732 Mouse beta-tubulin gene M-beta-5, 3' end (MOUSE);, mRNA sequence.
ACCESSION AA675240
VERSION AA675240.1 GI:2652477
KEYWORDS EST.
SOURCE house mouse.
ORGANISM Mus musculus
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
REFERENCE 1 (bases 1 to 64)
AUTHORS Marra,M., Hillier,L., Allen,M., Bowles,M., Dietrich,N., Dubuque,T., Geisel,S., Kucaba,T., Lacy,M., Le,M., Martin,J., Morris,M., Schellenberg,K., Steptoe,M., Tan,F., Underwood,K., Moore,B., Theising,B., Wylie,T., Lennon,G., Soares,B., Wilson,R. and Waterston,R.
TITLE The WashU-HHMI Mouse EST Project
JOURNAL Unpublished (1996)
COMMENT Contact: Marra M/Mouse EST Project
WashU-HHMI Mouse EST Project
Washington University School of MedicineP
4444 Forest Park Parkway, Box 8501, St. Louis, MO 63108
Tel: 314 286 1800
Fax: 314 286 1810
Email: mouseest@watson.wustl.edu
This clone is available royalty-free through LLNL ; contact the IMAGE Consortium (info@image.llnl.gov) for further information.
MGI:608642
Trace considered overall poor quality
High quality sequence stop: 1.

FEATURES Location/Qualifiers
source 1. .64
/organism="Mus musculus"
/strain="C57BL/6J x DBA/2J F1"
/db_xref="taxon:10090"
/clone="IMAGE:1110474"
/clone_lib="Knowles Solter mouse blastocyst B3"
/tissue_type="blastocyst"
/dev_stage="embryo (pre-implantation)"
/lab_host="DH10B"
/note="Organ: embryo; Vector: pSPORT; Site_1: NotI; Site_2: SalI; Cloned unidirectionally from mRNA prepared from 800 blastocysts. Primer: SalI(dT): 5'-CGGTCGACCGTCGACCGTTTTTTTTTTTTTTT-3'. cDNAs were cloned into the NotI/SalI sites of a pSPORT vector (Life Technologies). Two different size selections: B1 (larger inserts) and B3."

BASE COUNT 18 a 15 c 20 g 11 t
ORIGIN

Query Match 71.0%; Score 14.2; DB 9; Length 64;
Best Local Similarity 84.2%; Pred. No. 1.5e+04;
Matches 16; Conservative 0; Mismatches 3; Indels 0; Gaps 0;

```
Qy      2 CCATGTCGTTCCTGATGCT 20
          ||| ||||||| || ||||
Db     39 CCAGGTCGTTCATGTTGCT 21
```

RESULT 6
BF733153
LOCUS BF733153 71 bp mRNA linear EST 09-JAN-2001
DEFINITION EST058 Human hepatocellular carcinoma subtracted cDNA library Homo sapiens cDNA clone P58 5', mRNA sequence.
ACCESSION BF733153
VERSION BF733153.1 GI:12058389
KEYWORDS EST.
SOURCE human.
ORGANISM Homo sapiens

```
            Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
            Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
REFERENCE   1  (bases 1 to 71)
  AUTHORS   Zhu,W., Duan,F., Liu,D., Ma,J., Bai,J. and Gao,T.
  TITLE     Suppression subtracted hybridization to identify differentially
            expressed genes of hepatocellular carcinoma and expressed sequence
            tags sequencing
  JOURNAL   Unpublished (2001)
COMMENT     Contact: Wuling Zhu
            Department of Nucleic Acid Research
            Institute of Digestive Disease
            2 Jingba Road, Zhengzhou, 450003, Henan Province, PR.China
            Tel: 86 0371 3921444
            Fax: 86 0371 6960571
            Email: wuling_z@hotmail.com
            Human hepatocellular carcinoma cDNA research supported by Institute
            of Digestive Disease, Henan Medical University; cDNA insert
            sequencing: Genetech Biotechnology Company Limited. cDNA library
            construction: Department of Nucleic Acid Research, Institute of
            Digestive Disease.
            Seq primer: T7.
FEATURES             Location/Qualifiers
     source          1. .71
                     /organism="Homo sapiens"
                     /db_xref="taxon:9606"
                     /clone="P58"
                     /clone_lib="Human hepatocellular carcinoma subtracted cDNA
                     library"
                     /note="Organ: Liver"
BASE COUNT        9 a     27 c     16 g     19 t
ORIGIN

  Query Match             71.0%;  Score 14.2;  DB 12;  Length 71;
  Best Local Similarity   84.2%;  Pred. No. 1.6e+04;
  Matches   16;  Conservative    0;  Mismatches    3;  Indels    0;  Gaps    0;

Qy      2 CCATGTCGTTCCTGATGCT 20
          ||| ||||||| || ||||
Db      9 CCAGGTCGTTCATGTTGCT 27


RESULT 7
AL714425/c
LOCUS       AL714425                100 bp    mRNA    linear   EST 18-APR-2002
DEFINITION  AL714425 Danio rerio embryonic inner ear subtracted cDNA Danio
            rerio cDNA clone BN0AA005ZE11 5', mRNA sequence.
ACCESSION   AL714425
VERSION     AL714425.1  GI:20179028
KEYWORDS    EST.
SOURCE      zebrafish.
  ORGANISM  Danio rerio
            Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
            Actinopterygii; Neopterygii; Teleostei; Ostariophysi; Cypriniformes
            ; Cyprinidae; Danio.
REFERENCE   1  (bases 1 to 100)
  AUTHORS   Coimbra,R., Weil,D., Brottier,P., Blanchard,S., Levi,M., Hardelin
            ,J.P., Weissenbach,J. and Petit,C.
  TITLE     A subtracted cDNA library from the zebrafish (Danio rerio)
            embryonic inner ear
  JOURNAL   Unpublished (2002)
COMMENT     Contact: Genoscope
            Genoscope - Centre National de Sequencage
            BP 191 91006 EVRY cedex - France
            Email: seqref@genoscope.cns.fr, Web : www.genoscope.cns.fr.
FEATURES             Location/Qualifiers
     source          1. .100
                     /organism="Danio rerio"
                     /db_xref="taxon:7955"
                     /clone="BN0AA005ZE11"
                     /clone_lib="Danio rerio embryonic inner ear subtracted
                     cDNA"
                     /tissue_type="inner ear"
                     /dev_stage="embryonic"
                     /note="subtracted cDNA library"
BASE COUNT       24 a     23 c     38 g     15 t
ORIGIN

  Query Match             71.0%;  Score 14.2;  DB 9;  Length 100;
  Best Local Similarity   84.2%;  Pred. No. 1.7e+04;
  Matches   16;  Conservative    0;  Mismatches    3;  Indels    0;  Gaps    0;

Qy      2 CCATGTCGTTCCTGATGCT 20
          ||| ||||||| || ||||
Db     74 CCAGGTCGTTCATGTTGCT 56


RESULT 8
BE064261/c
LOCUS       BE064261                100 bp    mRNA    linear   EST 09-JUN-2000
DEFINITION  CM0-BT0306-221299-138-e03 BT0306 Homo sapiens cDNA, mRNA sequence.
ACCESSION   BE064261
VERSION     BE064261.1  GI:8408911
KEYWORDS    EST.
SOURCE      human.
  ORGANISM  Homo sapiens
            Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
            Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
REFERENCE   1  (bases 1 to 100)
  AUTHORS   Dias Neto,E., Garcia Correa,R., Verjovski-Almeida,S., Briones,M.R.,
            Nagai,M.A., da Silva,W. Jr., Zago,M.A., Bordin,S., Costa,F.F.,
            Goldman,G.H., Carvalho,A.F., Matsukuma,A., Baia,G.S., Simpson,D.H.,
            Brunstein,A., deOliveira,P.S., Bucher,P., Jongeneel,C.V., O'Hare
            ,M.J., Soares,F., Brentani,R.R., Reis,L.F., de Souza,S.J. and
            Simpson,A.J.
  TITLE     Shotgun sequencing of the human transcriptome with ORF expressed
            sequence tags
  JOURNAL   Proc. Natl. Acad. Sci. U.S.A. 97 (7), 3491-3496 (2000)
  MEDLINE   20202663
COMMENT     Contact: Simpson A.J.G.
            Laboratory of Cancer Genetics
            Ludwig Institute for Cancer Research
            Rua Prof. Antonio Prudente 109, 4 andar, 01509-010, Sao Paulo-SP,
            Brazil
            Tel: +55-11-2704922
            Fax: +55-11-2707001
            Email: asimpson@ludwig.org.br
            This sequence was derived from the FAPESP/LICR Human Cancer Genome
            Project. This entry can be seen in the following URL
            (http://www.ludwig.org.br/scripts/gethtml2.pl?t1=&t2=CM0-BT0306-221
            299-138-e03&t3=1999-12-22&t4=1)
            Seq primer: puc 18 forward
            High quality sequence start: 25
            High quality sequence stop: 98.
FEATURES             Location/Qualifiers
     source          1. .100
                     /organism="Homo sapiens"
                     /db_xref="taxon:9606"
                     /clone_lib="BT0306"
                     /dev_stage="Adult"
                     /note="Organ: breast; Vector: puc18; Site_1: SmaI; Site_2:
                     SmaI; A mini-library was made by cloning products derived
                     from  ORESTES PCR (U.S. Letters Patent application No. 196
                     ,716 -  Ludwig Institute for Cancer Research) profiles
                     into  the pUC 18 vector. Reverse transcription of tissue
                     mRNA and cDNA amplification were performed under low
                     stringency conditions."
BASE COUNT       33 a     27 c     21 g     19 t
ORIGIN

  Query Match             71.0%;  Score 14.2;  DB 10;  Length 100;
  Best Local Similarity   84.2%;  Pred. No. 1.7e+04;
  Matches   16;  Conservative    0;  Mismatches    3;  Indels    0;  Gaps    0;

Qy      2 CCATGTCGTTCCTGATGCT 20
          ||||||  |||||||| ||
Db     62 CCATGTGCTTCCTGATTCT 44
```

```
RESULT 9
AU105765/c
LOCUS       AU105765                 50 bp    mRNA    linear   EST 30-AUG-2001
DEFINITION  AU105765 Sugano Homo sapiens cDNA library Homo sapiens cDNA clone
            KAT04948, mRNA sequence.
ACCESSION   AU105765
VERSION     AU105765.1  GI:13555286
KEYWORDS    EST.
SOURCE      human.
  ORGANISM  Homo sapiens
            Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
            Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
REFERENCE   1  (bases 1 to 50)
  AUTHORS   Suzuki,Y., Taira,H., Tsunoda,T., Mizushima-Sugano,J., Sese,J., Hata
            ,H., Ota,T., Isogai,T., Tanaka,T., Morishita,S., Okubo,K., Sakaki
            ,Y., Nakamura,Y., Suyama,A. and Sugano,S.
  TITLE     Diverse transcriptional initiation revealed by fine, large-scale
            mapping of mRNA start sites
  JOURNAL   EMBO Rep. 2 (5), 388-393 (2001)
  MEDLINE   21270072
COMMENT     Contact: Yutaka Suzuki
            Department of Virology
            Institute of Medical Science, University of Tokyo
            4-6-1, Shirokanedai, Minatoku, Tokyo 108-8639, Japan
            Email: ysuzuki@ims.u-tokyo.ac.jp
            Suzuki,Y., Yoshitomo-Nakagawa,K., Maruyama,K., Suyama,A. and Sugano
            ,S. Construction and characterization of a full length-enriched and
            a 5'-end-enriched cDNA library. Gene 200 (1-2), 149-156 (1997).
FEATURES             Location/Qualifiers
     source          1. .50
                     /organism="Homo sapiens"
                     /db_xref="taxon:9606"
                     /clone="KAT04948"
                     /clone_lib="Sugano Homo sapiens cDNA library"
                     /note="Differential display comparison of untreated and
                     dimethylfumarate treated U937 cells"
BASE COUNT       10 a     12 c     17 g     11 t
ORIGIN

  Query Match             69.0%;  Score 13.8;  DB 9;  Length 50;
  Best Local Similarity   88.2%;  Pred. No. 2.1e+04;
  Matches   15;  Conservative    0;  Mismatches    2;  Indels    0;  Gaps    0;

Qy       2 CCATGTCGTTCCTGATG 18
           |||| |||||||||| |
Db      30 CCATCTCGTTCCTGAGG 14


RESULT 10
AA592095/c
LOCUS       AA592095                 85 bp    mRNA    linear   EST 17-SEP-1997
DEFINITION  vol4e07.r1 Barstead mouse myotubes MPLRB5 Mus musculus cDNA clone
            IMAGE:1049892 5' similar to SW:CRAB_HUMAN P02511 ALPHA CRYSTALLIN B
            CHAIN ;, mRNA sequence.
ACCESSION   AA592095
VERSION     AA592095.1  GI:2405758
KEYWORDS    EST.
SOURCE      house mouse.
  ORGANISM  Mus musculus
            Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
            Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
REFERENCE   1  (bases 1 to 85)
  AUTHORS   Marra,M., Hillier,L., Allen,M., Bowles,M., Dietrich,N., Dubuque,T.,
            Geisel,S., Kucaba,T., Lacy,M., Le,M., Martin,J., Morris,M.,
            Schellenberg,K., Steptoe,M., Tan,F., Underwood,K., Moore,B.,
            Theising,B., Wylie,T., Lennon,G., Soares,B., Wilson,R. and
            Waterston,R.
  TITLE     The WashU-HHMI Mouse EST Project
  JOURNAL   Unpublished (1996)
COMMENT     Contact: Marra M/Mouse EST Project
            WashU-HHMI Mouse EST Project
            Washington University School of MedicineP
            4444 Forest Park Parkway, Box 8501, St. Louis, MO 63108
            Tel: 314 286 1800
            Fax: 314 286 1810
            Email: mouseest@watson.wustl.edu
            This clone is available royalty-free through LLNL ; contact the
            IMAGE Consortium (info@image.llnl.gov) for further information.
            MGI:581468
            Trace considered overall poor quality
            Possible reversed clone: similarity on wrong strand
            Seq primer: -28m13 rev2 ET from Amersham
            High quality sequence stop: 1.
FEATURES             Location/Qualifiers
     source          1. .85
                     /organism="Mus musculus"
                     /strain="C3H"
                     /db_xref="taxon:10090"
                     /clone="IMAGE:1049892"
                     /clone_lib="Barstead mouse myotubes MPLRB5"
                     /cell_line="C2C12"
                     /lab_host="DH10B"
                     /note="Vector: pT7T3D-Pac (Pharmacia) with a modified
                     polylinker; Site_1: EcoRI; Site_2: NotI; 1st strand cDNA
                     was primed with a Not I - oligo(dT) primer [5'
                     TGTTACGAATCTGAAGTGGGAGCGGCCGCCCTTTTTTTTTTTTTTTTTTTTTT
                     3']; double-stranded cDNA was ligated to Eco RI adaptors
                     [AATTCGGATCCTTG], digested with Not I and cloned into the
                     Not I and Eco RI sites of the modified pT7T3 vector.
                     Library constructed by Bob Barstead. The C2C12 cell line
                     (available from ATCC, catalog # CRL-1772) differentiates
                     rapidly, forming contractile myotubes and producing
                     characteristic muscle proteins. "
BASE COUNT       30 a     14 c     22 g     19 t
ORIGIN

  Query Match             69.0%;  Score 13.8;  DB 9;  Length 85;
  Best Local Similarity   88.2%;  Pred. No. 2.5e+04;
  Matches   15;  Conservative    0;  Mismatches    2;  Indels    0;  Gaps    0;

Qy       4 ATGTCGTTCCTGATGCT 20
           ||||||||| || ||||
Db      85 ATGTCGTTCTTGGTGCT 69


RESULT 11
H55243
LOCUS       H55243                   94 bp    mRNA    linear   EST 07-DEC-1995
DEFINITION  CHR220182 Chromosome 22 exon Homo sapiens cDNA clone C22_228 5',
            mRNA sequence.
ACCESSION   H55243
VERSION     H55243.1  GI:1108109
KEYWORDS    EST.
SOURCE      human.
  ORGANISM  Homo sapiens
            Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
            Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
REFERENCE   1  (bases 1 to 94)
  AUTHORS   Trofatter,J.A., Long,K.R., Murrell,J.R., Stotler,C.J., Gusella,J.F.
            and Buckler,A.J.
  TITLE     An expression-independent catalog of genes from human chromosome 22
  JOURNAL   Genome Res. 5 (3), 214-224 (1995)
  MEDLINE   96159527
COMMENT     Contact: Buckler AJ
            Molecular Neurogenetics Unit
            Massachusetts General Hospital
            Building 149, 13th St., Charlestown MA 02129
            Tel: 6177249616
            Fax: 6177265736
            Email: buckler@helix.mgh.harvard.edu
            Seq primer: T3.
FEATURES             Location/Qualifiers
     source          1. .94
                     /organism="Homo sapiens"
```

/db_xref="taxon:9606"
/clone="C22_228"
/clone_lib="Chromosome 22 exon"
/lab_host="E. coli DH5a"
/note="Vector: pBluescriptIIKS+; Site_1: Sal I; Site_2: Bam HI (destroyed); Exons were isolated from human chromosome 22 specific cosmids using a modification of the method of exon amplification (Proc. Natl. Acad. Sci. USA 88:4005-4009, 1991). Amplified exons were digested with Sal I and Bgl II and subsequently cloned into pBluescriptIIKS+ at the Sal I and Bam HI sites."

BASE COUNT 32 a 22 c 19 g 21 t
ORIGIN

Query Match 69.0%; Score 13.8; DB 14; Length 94;
Best Local Similarity 88.2%; Pred. No. 2.6e+04;
Matches 15; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

Qy 1 TCCATGTCGTTCCTGAT 17
||| |||||||| ||||
Db 50 TCCCTGTCGTTCATGAT 66

RESULT 12
AA611416
LOCUS AA611416 46 bp mRNA linear EST 01-OCT-1997
DEFINITION vo51f04.r1 Barstead mouse irradiated colon MPLRB7 Mus musculus cDNA clone IMAGE:1053439 5' similar to SW:IPYR_BOVIN P37980 INORGANIC PYROPHOSPHATASE ;, mRNA sequence.
ACCESSION AA611416
VERSION AA611416.1 GI:2461495
KEYWORDS EST.
SOURCE house mouse.
ORGANISM Mus musculus
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
REFERENCE 1 (bases 1 to 46)
AUTHORS Marra,M., Hillier,L., Allen,M., Bowles,M., Dietrich,N., Dubuque,T., Geisel,S., Kucaba,T., Lacy,M., Le,M., Martin,J., Morris,M., Schellenberg,K., Steptoe,M., Tan,F., Underwood,K., Moore,B., Theising,B., Wylie,T., Lennon,G., Soares,B., Wilson,R. and Waterston,R.
TITLE The WashU-HHMI Mouse EST Project
JOURNAL Unpublished (1996)
COMMENT Contact: Marra M/Mouse EST Project
WashU-HHMI Mouse EST Project
Washington University School of MedicineP
4444 Forest Park Parkway, Box 8501, St. Louis, MO 63108
Tel: 314 286 1800
Fax: 314 286 1810
Email: mouseest@watson.wustl.edu
This clone is available royalty-free through LLNL ; contact the IMAGE Consortium (info@image.llnl.gov) for further information.
MGI:585015
Trace considered overall poor quality
Possible reversed clone: similarity on wrong strand
Seq primer: -28m13 rev2 ET from Amersham
High quality sequence stop: 1.
FEATURES Location/Qualifiers
source 1. .46
/organism="Mus musculus"
/strain="FVB/N"
/db_xref="taxon:10090"
/clone="IMAGE:1053439"
/clone_lib="Barstead mouse irradiated colon MPLRB7"
/dev_stage="8 weeks"
/lab_host="DH10B"
/note="Vector: pT7T3D-Pac (Pharmacia) with a modified polylinker; Site_1: EcoRI; Site_2: NotI; Tissue obtained from 8 week old mouse. Colon was harvested 72 hours after irradiation with 1400 Gys. 1st strand cDNA was primed with a Not I - oligo(dT) primer [5'TGTTACGAATCTGAAGTGGGAGCGGCCGCCCTTTTTTTTTTTTTTTTTTTTTTT T 3']; double-stranded cDNA was ligated to Eco RI adaptors [AATTCGGATCCTTG], digested with Not I and cloned into the Not I and Eco RI sites of the modified pT7T3 vector. Library constructed by Bob Barstead. "

BASE COUNT 7 a 14 c 9 g 16 t
ORIGIN

Query Match 68.0%; Score 13.6; DB 9; Length 46;
Best Local Similarity 80.0%; Pred. No. 2.6e+04;
Matches 16; Conservative 0; Mismatches 4; Indels 0; Gaps 0;

Qy 1 TCCATGTCGTTCCTGATGCT 20
|| || || ||||||||||
Db 6 TCTATTGCGATCCTGATGCT 25

RESULT 13
FR0032825
LOCUS FR0032825 80 bp DNA linear GSS 27-JUN-1998
DEFINITION Fugu rubripes GSS sequence, clone 152F05aG3, genomic survey sequence.
ACCESSION AL029193
VERSION AL029193.1 GI:3271307
KEYWORDS GSS; genome survey sequence.
SOURCE Takifugu rubripes.
ORGANISM Takifugu rubripes
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Actinopterygii; Neopterygii; Teleostei; Euteleostei; Neoteleostei; Acanthomorpha; Acanthopterygii; Percomorpha; Tetraodontiformes; Tetraodontidae; Takifugu.
REFERENCE 1 (bases 1 to 80)
AUTHORS Elgar,G., Clark,M., Smith,S., Meek,S., Warner,S., Umrania,Y., Williams,G. and Brenner,S.
TITLE Direct Submission
JOURNAL Submitted (09-JUN-1998) MRC Human Genome Mapping Project Resource Centre, Hinxton, Cambridge, CB10 1SB, UK. Email: biohelp@hgmp.mrc.ac.uk
COMMENT Vector: pBluescript II KS
V_type: phagemid
PRIMER: KS
DESCR:
One pass dye-terminator sequencing of cosmid cloned genomic sequence.
FEATURES Location/Qualifiers
source 1. .80
/organism="Takifugu rubripes"
/db_xref="taxon:31033"
/clone="152F05aG3"
/clone_lib="cosmid 152F05"
BASE COUNT 7 a 22 c 13 g 35 t 3 others
ORIGIN

Query Match 68.0%; Score 13.6; DB 17; Length 80;
Best Local Similarity 80.0%; Pred. No. 3e+04;
Matches 16; Conservative 0; Mismatches 4; Indels 0; Gaps 0;

Qy 1 TCCATGTCGTTCCTGATGCT 20
||||| || ||||| | |||
Db 50 TCCATCTCTTTCCTCAGGCT 69

RESULT 14
AF082885/c
LOCUS AF082885 88 bp DNA linear GSS 21-FEB-2001
DEFINITION AF082885 Capra hircus Saanen Capra hircus genomic similar to actin alpha 2 (ACTA2) gene, DNA sequence.
ACCESSION AF082885
VERSION AF082885.1 GI:3776484
KEYWORDS GSS.
SOURCE goat.
ORGANISM Capra hircus
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovoidea;

```
            Bovidae; Caprinae; Capra.
REFERENCE   1  (bases 1 to 88)
  AUTHORS   Schibler,L., Vaiman,D., Oustry,A., Giraud-Delville,C. and Cribiu
            ,E.P.
  TITLE     Comparative gene mapping: A fine-scale survey of chromosome
            rearrangements between ruminants and humans
  JOURNAL   Genome Res. 8 (9), 901-915 (1998)
  MEDLINE   98424412
COMMENT     Contact: Cribiu EP
            Laboratoire de Genetique Biochimique et de Cytogenetique
            INRA
            Jouy-en-Josas, 78352, France
            Class: unknown.
FEATURES             Location/Qualifiers
     source          1. .88
                     /organism="Capra hircus"
                     /strain="Saanen"
                     /db_xref="taxon:9925"
                     /map="28q17"
                     /clone_lib="Capra hircus Saanen"
BASE COUNT       38 a     15 c     24 g      7 t      4 others
ORIGIN

  Query Match             68.0%;  Score 13.6;  DB 17;  Length 88;
  Best Local Similarity   80.0%;  Pred. No. 3.1e+04;
  Matches   16;  Conservative    0;  Mismatches    4;  Indels    0;  Gaps    0;

Qy      1 TCCATGTCGTTCCTGATGCT 20
          |||||||||| || | || |
Db     56 TCCATGTCGTCCCAGTTGGT 37


RESULT 15
AZ305284
LOCUS       AZ305284                 89 bp    DNA     linear   GSS 29-SEP-2000
DEFINITION  1M0005I20R Mouse 10kb plasmid UUGC1M library Mus musculus genomic
            clone UUGC1M0005I20 R, DNA sequence.
ACCESSION   AZ305284
VERSION     AZ305284.1  GI:10342144
KEYWORDS    GSS.
SOURCE      house mouse.
  ORGANISM  Mus musculus
            Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
            Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
REFERENCE   1  (bases 1 to 89)
  AUTHORS   Dunn,D., Aoyagi,A., Barber,M., Beacorn,T., Duval,B., Hamil,C.,
            Islam,H., Longacre,S., Mahmoud,M., Meenen,E., Pedersen,T., Reilly
            ,M., Rose,M., Rose,R., Stokes,R., Tingey,A., von Niederhausern,A.
            and Wright,D.,Weiss,R.
  TITLE     Mouse whole genome scaffolding with paired end reads from 10kb
            plasmid inserts
  JOURNAL   Unpublished (2000)
COMMENT     Contact: Robert B. Weiss
            University of Utah Genome Center
            University of Utah
            Rm. 308, Biomedical Polymers Research Bldg., 20 S. 2030 E., SLC, UT
            84112, USA
            Tel: 801 585 5606
            Fax: 801 585 7177
            Email: ddunn@genetics.utah.edu
            Insert Length: 10000   Std Error: 0.00
            Plate: 0005  row: I  column: 20
            Seq primer: CACACAGGAAACAGCTATGACC
            Class: plasmid ends
            High quality sequence stop: 89.
FEATURES             Location/Qualifiers
     source          1. .89
                     /organism="Mus musculus"
                     /strain="C57BL/6J"
                     /db_xref="taxon:10090"
                     /clone="UUGC1M0005I20"
                     /clone_lib="Mouse 10kb plasmid UUGC1M library"
                     /sex="Male"
                     /lab_host="E. Coli strain XL10-Gold, T1-resistant, F-"
                     /note="Vector: PWD42nv; Purified genomic DNA from M.
                     musculus C57BL/6J (male) was obtained  from the Jackson
                     Laboratory Mouse DNA Resource
                     (http://www.jax.org/resources/documents/dnares/). The DNA
                     was hydrodynamically sheared by repeated passage through a
                     0.005 inch orifice at constant velocity. The sheared DNA
                     was blunt end-repaired with T4 DNA polymerase and T4
                     polynucleotide kinase. Adaptor oligonucleotides were
                     ligated to the blunt ends in high  molar excess. The
                     adaptored DNA was purified and size-selected for a 9.5 to
                     10.5 kb range using preparative agarose gel
                     electrophoresis. Vector DNA was prepared from a derivative
                     of pWD42 (gi|4732114|gb|AF129072.1), a copy-number
                     inducible derivative of plasmid R1. The vector was ligated
                     with adaptors complementary to the insert adaptors and
                     purified. The sheared, adaptored mouse DNA was annealed to
                     adaptored vector DNA, and transformed into
                     chemically-competent E. coli XL10-Gold (Stratagene) cells
                     and selected for ampicillin resistance."
BASE COUNT       18 a     25 c     20 g     26 t
ORIGIN

  Query Match             68.0%;  Score 13.6;  DB 17;  Length 89;
  Best Local Similarity   80.0%;  Pred. No. 3.1e+04;
  Matches   16;  Conservative    0;  Mismatches    4;  Indels    0;  Gaps    0;

Qy      1 TCCATGTCGTTCCTGATGCT 20
          |||||||  | |||  |||||
Db     18 TCCATGTGGATCCCAATGCT 37


Search completed: March  2, 2003, 00:41:03
Job time : 1062.75 secs
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GenCore version 5.1.4_p5_4578


OM nucleic - nucleic search, using sw model

Run on: March 1, 2003, 22:53:06 ; Search time 41 Seconds
(without alignments)
149.598 Million cell updates/sec

Title: US-09-818-918-43
Perfect score: 20
Sequence: 1 tccatgtcgttcctgatgct 20

Scoring table: IDENTITY_NUC
Gapop 10.0 , Gapext 1.0

Searched: 441362 seqs, 153338381 residues

Total number of hits satisfying chosen parameters: 687286

Minimum DB seq length: 0
Maximum DB seq length: 100

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : Issued_Patents_NA:*
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2: /cgn2_6/ptodata/1/ina/5B_COMB.seq:*
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Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

| Result No. | Score | % Query Match | Length | DB | ID | Description |
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| 1 | 20 | 100.0 | 20 | 4 | US-08-738-652-43 | Sequence 43, Appl |
| 2 | 20 | 100.0 | 20 | 4 | US-08-738-652-53 | Sequence 53, Appl |
| 3 | 20 | 100.0 | 20 | 4 | US-09-030-701-5 | Sequence 5, Appli |
| 4 | 20 | 100.0 | 20 | 4 | US-09-286-098-48 | Sequence 48, Appl |
| 5 | 20 | 100.0 | 20 | 4 | US-09-286-098-56 | Sequence 56, Appl |
| 6 | 20 | 100.0 | 20 | 4 | US-09-286-098-57 | Sequence 57, Appl |
| 7 | 20 | 100.0 | 20 | 4 | US-08-960-774-38 | Sequence 38, Appl |
| 8 | 20 | 100.0 | 20 | 4 | US-09-082-649B-71 | Sequence 71, Appl |
| 9 | 20 | 100.0 | 20 | 4 | US-09-325-193A-49 | Sequence 49, Appl |
| 10 | 20 | 100.0 | 20 | 4 | US-09-191-170-43 | Sequence 43, Appl |
| 11 | 20 | 100.0 | 20 | 4 | US-09-191-170-51 | Sequence 51, Appl |
| 12 | 19 | 95.0 | 20 | 4 | US-09-030-701-25 | Sequence 25, Appl |
| 13 | 19 | 95.0 | 20 | 4 | US-08-960-774-44 | Sequence 44, Appl |
| 14 | 19 | 95.0 | 20 | 4 | US-09-082-649B-72 | Sequence 72, Appl |
| 15 | 18.4 | 92.0 | 20 | 1 | US-08-436-714-7 | Sequence 7, Appli |
| 16 | 18.4 | 92.0 | 20 | 1 | US-08-442-705-7 | Sequence 7, Appli |
| 17 | 18.4 | 92.0 | 20 | 1 | US-08-332-829-7 | Sequence 7, Appli |
| 18 | 18.4 | 92.0 | 20 | 2 | US-09-133-774-11 | Sequence 11, Appl |
| 19 | 18.4 | 92.0 | 20 | 3 | US-08-386-063-21 | Sequence 21, Appl |
| 20 | 18.4 | 92.0 | 20 | 3 | US-08-386-063-25 | Sequence 25, Appl |
| 21 | 18.4 | 92.0 | 20 | 3 | US-09-303-862-11 | Sequence 11, Appl |
| 22 | 18.4 | 92.0 | 20 | 4 | US-08-386-063-21 | Sequence 21, Appl |
| 23 | 18.4 | 92.0 | 20 | 4 | US-08-386-063-25 | Sequence 25, Appl |
| 24 | 18.4 | 92.0 | 20 | 4 | US-08-738-652-7 | Sequence 7, Appli |
| 25 | 18.4 | 92.0 | 20 | 4 | US-08-738-652-31 | Sequence 31, Appl |
| 26 | 18.4 | 92.0 | 20 | 4 | US-08-738-652-33 | Sequence 33, Appl |
| 27 | 18.4 | 92.0 | 20 | 4 | US-08-738-652-34 | Sequence 34, Appl |
| 28 | 18.4 | 92.0 | 20 | 4 | US-08-738-652-35 | Sequence 35, Appl |
| 29 | 18.4 | 92.0 | 20 | 4 | US-08-738-652-37 | Sequence 37, Appl |
| 30 | 18.4 | 92.0 | 20 | 4 | US-08-738-652-41 | Sequence 41, Appl |
| 31 | 18.4 | 92.0 | 20 | 4 | US-08-738-652-42 | Sequence 42, Appl |
| 32 | 18.4 | 92.0 | 20 | 4 | US-08-738-652-44 | Sequence 44, Appl |
| 33 | 18.4 | 92.0 | 20 | 4 | US-08-738-652-54 | Sequence 54, Appl |
| 34 | 18.4 | 92.0 | 20 | 4 | US-09-030-701-4 | Sequence 4, Appli |
| 35 | 18.4 | 92.0 | 20 | 4 | US-09-286-098-22 | Sequence 22, Appl |
| 36 | 18.4 | 92.0 | 20 | 4 | US-09-286-098-23 | Sequence 23, Appl |
| 37 | 18.4 | 92.0 | 20 | 4 | US-09-286-098-24 | Sequence 24, Appl |
| 38 | 18.4 | 92.0 | 20 | 4 | US-09-286-098-42 | Sequence 42, Appl |
| 39 | 18.4 | 92.0 | 20 | 4 | US-09-286-098-46 | Sequence 46, Appl |
| 40 | 18.4 | 92.0 | 20 | 4 | US-09-286-098-47 | Sequence 47, Appl |
| 41 | 18.4 | 92.0 | 20 | 4 | US-08-960-774-7 | Sequence 7, Appli |
| 42 | 18.4 | 92.0 | 20 | 4 | US-08-960-774-28 | Sequence 28, Appl |
| 43 | 18.4 | 92.0 | 20 | 4 | US-08-960-774-36 | Sequence 36, Appl |
| 44 | 18.4 | 92.0 | 20 | 4 | US-08-960-774-37 | Sequence 37, Appl |
| 45 | 18.4 | 92.0 | 20 | 4 | US-09-082-649B-68 | Sequence 68, Appl |

ALIGNMENTS

```
RESULT 1
US-08-738-652-43
; Sequence 43, Application US/08738652B
; Patent No. 6207646
; GENERAL INFORMATION:
;  APPLICANT: Krieg, Arthur M.
;  TITLE OF INVENTION: Immunostimulatory Nucleic Acid Molecules
;  FILE REFERENCE: C1039/7004 HCL
;  CURRENT APPLICATION NUMBER: US/08/738,652B
;  CURRENT FILING DATE: 1996-10-30
;  EARLIER APPLICATION NUMBER: US 08/276,358
;  EARLIER FILING DATE: 1994-07-15
;  EARLIER APPLICATION NUMBER: US 08/386,063
;  EARLIER FILING DATE: 1995-02-07
;  NUMBER OF SEQ ID NOS: 55
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 43
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic oligonucleotide
US-08-738-652-43

  Query Match            100.0%;  Score 20;  DB 4;  Length 20;
  Best Local Similarity  100.0%;  Pred. No. 0.17;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       1 TCCATGTCGTTCCTGATGCT 20
           ||||||||||||||||||||
Db       1 TCCATGTCGTTCCTGATGCT 20


RESULT 2
US-08-738-652-53
; Sequence 53, Application US/08738652B
; Patent No. 6207646
; GENERAL INFORMATION:
;  APPLICANT: Krieg, Arthur M.
;  TITLE OF INVENTION: Immunostimulatory Nucleic Acid Molecules
;  FILE REFERENCE: C1039/7004 HCL
;  CURRENT APPLICATION NUMBER: US/08/738,652B
;  CURRENT FILING DATE: 1996-10-30
;  EARLIER APPLICATION NUMBER: US 08/276,358
;  EARLIER FILING DATE: 1994-07-15
;  EARLIER APPLICATION NUMBER: US 08/386,063
;  EARLIER FILING DATE: 1995-02-07
;  NUMBER OF SEQ ID NOS: 55
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 53
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;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic oligonucleotide
;   FEATURE:
;   NAME/KEY: modified_base
;   LOCATION: (8)...(8)
;   OTHER INFORMATION: m5c
US-08-738-652-53

  Query Match             100.0%;  Score 20;  DB 4;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 0.17;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGTCGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATGTCGTTCCTGATGCT 20


RESULT 3
US-09-030-701-5
; Sequence 5, Application US/09030701B
; Patent No. 6214806
; GENERAL INFORMATION:
;  APPLICANT:  Krieg, Arthur M.
;  APPLICANT:  Schwartz, David A.
;  TITLE OF INVENTION:  USE OF NUCLEIC ACIDS CONTAINING
;  TITLE OF INVENTION:  UNMETHYLATED CpG DINUCLEOTIDE IN THE TREATMENT OF
;  TITLE OF INVENTION:  LPS-ASSOCIATED DISORDERS
;  FILE REFERENCE:  C1039/7011
;  CURRENT APPLICATION NUMBER: US/09/030,701B
;  CURRENT FILING DATE:  1998-02-25
;  PRIOR APPLICATION NUMBER:  60/039,405
;  PRIOR FILING DATE:  1997-02-28
;  NUMBER OF SEQ ID NOS:  65
;  SOFTWARE:  FastSEQ for Windows Version 3.0
; SEQ ID NO 5
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: synthetic oligonucleotide
US-09-030-701-5

  Query Match             100.0%;  Score 20;  DB 4;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 0.17;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGTCGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATGTCGTTCCTGATGCT 20


RESULT 4
US-09-286-098-48
; Sequence 48, Application US/09286098
; Patent No. 6218371
; GENERAL INFORMATION:
;  APPLICANT: Krieg, Arthur M.
;  APPLICANT: Weiner, George
;  TITLE OF INVENTION: Methods and Products for Stimulating the
;  TITLE OF INVENTION: Immune System Using Immunotherapeutic Oligonucleotides and
;  TITLE OF INVENTION: Cytokines
;  FILE REFERENCE: C1039/7026/HCL
;  CURRENT APPLICATION NUMBER: US/09/286,098
;  CURRENT FILING DATE: 1999-04-02
;  EARLIER APPLICATION NUMBER: US 60/080,729
;  EARLIER FILING DATE: 1998-04-03
;  NUMBER OF SEQ ID NOS: 105
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 48
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic Sequence
US-09-286-098-48

  Query Match             100.0%;  Score 20;  DB 4;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 0.17;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGTCGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATGTCGTTCCTGATGCT 20


RESULT 5
US-09-286-098-56
; Sequence 56, Application US/09286098
; Patent No. 6218371
; GENERAL INFORMATION:
;  APPLICANT: Krieg, Arthur M.
;  APPLICANT: Weiner, George
;  TITLE OF INVENTION: Methods and Products for Stimulating the
;  TITLE OF INVENTION: Immune System Using Immunotherapeutic Oligonucleotides and
;  TITLE OF INVENTION: Cytokines
;  FILE REFERENCE: C1039/7026/HCL
;  CURRENT APPLICATION NUMBER: US/09/286,098
;  CURRENT FILING DATE: 1999-04-02
;  EARLIER APPLICATION NUMBER: US 60/080,729
;  EARLIER FILING DATE: 1998-04-03
;  NUMBER OF SEQ ID NOS: 105
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 56
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic Sequence
US-09-286-098-56

  Query Match             100.0%;  Score 20;  DB 4;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 0.17;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGTCGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATGTCGTTCCTGATGCT 20


RESULT 6
US-09-286-098-57
; Sequence 57, Application US/09286098
; Patent No. 6218371
; GENERAL INFORMATION:
;  APPLICANT: Krieg, Arthur M.
;  APPLICANT: Weiner, George
;  TITLE OF INVENTION: Methods and Products for Stimulating the
;  TITLE OF INVENTION: Immune System Using Immunotherapeutic Oligonucleotides and
;  TITLE OF INVENTION: Cytokines
;  FILE REFERENCE: C1039/7026/HCL
;  CURRENT APPLICATION NUMBER: US/09/286,098
;  CURRENT FILING DATE: 1999-04-02
;  EARLIER APPLICATION NUMBER: US 60/080,729
;  EARLIER FILING DATE: 1998-04-03
;  NUMBER OF SEQ ID NOS: 105
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 57
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic Sequence
;   FEATURE:
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;   NAME/KEY: modified_base
;   LOCATION: (8)...(8)
;   OTHER INFORMATION: m5c
US-09-286-098-57

  Query Match             100.0%;  Score 20;  DB 4;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 0.17;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGTCGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATGTCGTTCCTGATGCT 20


RESULT 7
US-08-960-774-38
; Sequence 38, Application US/08960774
; Patent No. 6239116
;  GENERAL INFORMATION:
;    APPLICANT:  Krieg et al.,
;    TITLE OF INVENTION:  IMMUNOSTIMULATORY NUCLEIC ACID MOLECULES
;    NUMBER OF SEQUENCES:  111
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Fish & Richardson P.C.
;      STREET:  4225 Executive Square, Suite 1400
;      CITY:  La Jolla
;      STATE:  CA
;      COUNTRY:  USA
;      ZIP:  92037
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  ASCII text
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/960,774
;      FILING DATE:  30-October-1997
;      CLASSIFICATION:  514
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  U.S. Serial No. 6239116  08/738,652
;      FILING DATE:  October 30, 1996
;      CLASSIFICATION:  514
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Haile, Lisa A.
;      REGISTRATION NUMBER:  38,347
;      REFERENCE/DOCKET NUMBER:  08918/012001
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  619/678-5070
;      TELEFAX:  619/678-5099
;  INFORMATION FOR SEQ ID NO:  38:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  20 base pairs
;      TYPE:  nucleic acid
;      STRANDEDNESS:  single
;      TOPOLOGY:  linear
;    MOLECULE TYPE:  cDNA
US-08-960-774-38

  Query Match             100.0%;  Score 20;  DB 4;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 0.17;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGTCGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATGTCGTTCCTGATGCT 20


RESULT 8
US-09-082-649B-71
; Sequence 71, Application US/09082649B
; Patent No. 6339068
; GENERAL INFORMATION:
;  APPLICANT:  Davis, Heather L.
;  APPLICANT:  Krieg, Arthur M.
;  APPLICANT:  Schorr, Joachim
;  APPLICANT:  Wu, Tong
;  TITLE OF INVENTION:  Vectors and Methods for Immunization or
;  TITLE OF INVENTION:  Therapeutic Protocols
;  FILE REFERENCE:  C1039/7009
;  CURRENT APPLICATION NUMBER: US/09/082,649B
;  CURRENT FILING DATE:  1998-05-20
;  PRIOR APPLICATION NUMBER:  US 60/047,233
;  PRIOR FILING DATE:  1997-05-20
;  PRIOR APPLICATION NUMBER:  US 60/047,209
;  PRIOR FILING DATE:  1997-05-20
;  NUMBER OF SEQ ID NOS:  85
;  SOFTWARE:  FastSEQ for Windows Version 3.0
; SEQ ID NO 71
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: synthetic oligonucleotide
US-09-082-649B-71

  Query Match             100.0%;  Score 20;  DB 4;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 0.17;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGTCGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATGTCGTTCCTGATGCT 20


RESULT 9
US-09-325-193A-49
; Sequence 49, Application US/09325193A
; Patent No. 6406705
; GENERAL INFORMATION:
;  APPLICANT:  Davis, Heather L.
;  APPLICANT:  Schorr, Joachim
;  APPLICANT:  Krieg, Arthur M.
;  TITLE OF INVENTION:  Use of Nucleic Acids Containing
;  TITLE OF INVENTION:  Unmethylated CpG Dinucleotide as an Adjuvant
;  FILE REFERENCE:  C1039/7025/HCL
;  CURRENT APPLICATION NUMBER: US/09/325,193A
;  CURRENT FILING DATE:  1999-06-03
;  PRIOR APPLICATION NUMBER:  US 09/154,614
;  PRIOR FILING DATE:  1998-09-16
;  PRIOR APPLICATION NUMBER:  PCT/US98/04703
;  PRIOR FILING DATE:  1998-03-10
;  PRIOR APPLICATION NUMBER:  US 60/040,376
;  PRIOR FILING DATE:  1997-03-10
;  NUMBER OF SEQ ID NOS:  98
;  SOFTWARE:  FastSEQ for Windows Version 3.0
; SEQ ID NO 49
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic Oligonucleotide
US-09-325-193A-49

  Query Match             100.0%;  Score 20;  DB 4;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 0.17;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGTCGTTCCTGATGCT 20
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Db      1 TCCATGTCGTTCCTGATGCT 20


RESULT 10
US-09-191-170-43
; Sequence 43, Application US/09191170
; Patent No. 6429199
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; GENERAL INFORMATION:
;  APPLICANT: Krieg, Arthur M.
;  APPLICANT: Hartmann, Gunther
;  TITLE OF INVENTION: Immunostimulatory Nucleic Acid Molecules
;  TITLE OF INVENTION: for Activating Dendritic Cells
;  FILE REFERENCE: C1039/7017
;  CURRENT APPLICATION NUMBER: US/09/191,170
;  CURRENT FILING DATE: 1998-11-13
;  EARLIER APPLICATION NUMBER: US 08/960,774
;  EARLIER FILING DATE: 1997-10-30
;  EARLIER APPLICATION NUMBER: US 08/738,652
;  EARLIER FILING DATE: 1996-10-30
;  EARLIER APPLICATION NUMBER: US 08/386,063
;  EARLIER FILING DATE: 1995-02-07
;  EARLIER APPLICATION NUMBER: US 08/276,358
;  EARLIER FILING DATE: 1994-07-15
;  NUMBER OF SEQ ID NOS: 99
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 43
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: synthetic oligonucleotide
US-09-191-170-43

  Query Match             100.0%;  Score 20;  DB 4;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 0.17;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGTCGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATGTCGTTCCTGATGCT 20


RESULT 11
US-09-191-170-51
; Sequence 51, Application US/09191170
; Patent No. 6429199
; GENERAL INFORMATION:
;  APPLICANT: Krieg, Arthur M.
;  APPLICANT: Hartmann, Gunther
;  TITLE OF INVENTION: Immunostimulatory Nucleic Acid Molecules
;  TITLE OF INVENTION: for Activating Dendritic Cells
;  FILE REFERENCE: C1039/7017
;  CURRENT APPLICATION NUMBER: US/09/191,170
;  CURRENT FILING DATE: 1998-11-13
;  EARLIER APPLICATION NUMBER: US 08/960,774
;  EARLIER FILING DATE: 1997-10-30
;  EARLIER APPLICATION NUMBER: US 08/738,652
;  EARLIER FILING DATE: 1996-10-30
;  EARLIER APPLICATION NUMBER: US 08/386,063
;  EARLIER FILING DATE: 1995-02-07
;  EARLIER APPLICATION NUMBER: US 08/276,358
;  EARLIER FILING DATE: 1994-07-15
;  NUMBER OF SEQ ID NOS: 99
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 51
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: synthetic oligonucleotide
;   FEATURE:
;   NAME/KEY: modified_base
;   LOCATION: (8)...(8)
;   OTHER INFORMATION: m5c
US-09-191-170-51

  Query Match             100.0%;  Score 20;  DB 4;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 0.17;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGTCGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATGTCGTTCCTGATGCT 20


RESULT 12
US-09-030-701-25
; Sequence 25, Application US/09030701B
; Patent No. 6214806
; GENERAL INFORMATION:
;  APPLICANT:  Krieg, Arthur M.
;  APPLICANT:  Schwartz, David A.
;  TITLE OF INVENTION:  USE OF NUCLEIC ACIDS CONTAINING
;  TITLE OF INVENTION:  UNMETHYLATED CpG DINUCLEOTIDE IN THE TREATMENT OF
;  TITLE OF INVENTION:  LPS-ASSOCIATED DISORDERS
;  FILE REFERENCE:  C1039/7011
;  CURRENT APPLICATION NUMBER: US/09/030,701B
;  CURRENT FILING DATE:  1998-02-25
;  PRIOR APPLICATION NUMBER:  60/039,405
;  PRIOR FILING DATE:  1997-02-28
;  NUMBER OF SEQ ID NOS:  65
;  SOFTWARE:  FastSEQ for Windows Version 3.0
; SEQ ID NO 25
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: synthetic oligonucleotide
;   NAME/KEY: misc_feature
;   LOCATION: (8)...(8)
;   OTHER INFORMATION: any nucleotide
US-09-030-701-25

  Query Match             95.0%;  Score 19;  DB 4;  Length 20;
  Best Local Similarity   95.0%;  Pred. No. 0.55;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy      1 TCCATGTCGTTCCTGATGCT 20
          ||||||| ||||||||||||
Db      1 TCCATGTNGTTCCTGATGCT 20


RESULT 13
US-08-960-774-44
; Sequence 44, Application US/08960774
; Patent No. 6239116
;  GENERAL INFORMATION:
;    APPLICANT:  Krieg et al.,
;    TITLE OF INVENTION:  IMMUNOSTIMULATORY NUCLEIC ACID MOLECULES
;    NUMBER OF SEQUENCES:  111
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Fish & Richardson P.C.
;      STREET:  4225 Executive Square, Suite 1400
;      CITY:  La Jolla
;      STATE:  CA
;      COUNTRY:  USA
;      ZIP:  92037
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  ASCII text
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/960,774
;      FILING DATE:  30-October-1997
;      CLASSIFICATION:  514
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  U.S. Serial No. 6239116  08/738,652
;      FILING DATE:  October 30, 1996
;      CLASSIFICATION:  514
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Haile, Lisa A.
;      REGISTRATION NUMBER:  38,347
```

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;      REFERENCE/DOCKET NUMBER:  08918/012001
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  619/678-5070
;      TELEFAX:  619/678-5099
;  INFORMATION FOR SEQ ID NO:  44:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  20 base pairs
;      TYPE:  nucleic acid
;      STRANDEDNESS:  single
;      TOPOLOGY:  linear
;    MOLECULE TYPE:  cDNA
;    FEATURE:
;      NAME/KEY:  misc_feature
;      LOCATION:  8...8
;      OTHER INFORMATION:  where N at position 8 is 5 methyl cytosine
US-08-960-774-44

  Query Match             95.0%;  Score 19;  DB 4;  Length 20;
  Best Local Similarity   95.0%;  Pred. No. 0.55;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy      1 TCCATGTCGTTCCTGATGCT 20
          ||||||| ||||||||||||
Db      1 TCCATGTNGTTCCTGATGCT 20


RESULT 14
US-09-082-649B-72
; Sequence 72, Application US/09082649B
; Patent No. 6339068
; GENERAL INFORMATION:
;  APPLICANT:  Davis, Heather L.
;  APPLICANT:  Krieg, Arthur M.
;  APPLICANT:  Schorr, Joachim
;  APPLICANT:  Wu, Tong
;  TITLE OF INVENTION:  Vectors and Methods for Immunization or
;  TITLE OF INVENTION:  Therapeutic Protocols
;  FILE REFERENCE:  C1039/7009
;  CURRENT APPLICATION NUMBER: US/09/082,649B
;  CURRENT FILING DATE:  1998-05-20
;  PRIOR APPLICATION NUMBER:  US 60/047,233
;  PRIOR FILING DATE:  1997-05-20
;  PRIOR APPLICATION NUMBER:  US 60/047,209
;  PRIOR FILING DATE:  1997-05-20
;  NUMBER OF SEQ ID NOS:  85
;  SOFTWARE:  FastSEQ for Windows Version 3.0
; SEQ ID NO 72
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: synthetic oligonucleotide
US-09-082-649B-72

  Query Match             95.0%;  Score 19;  DB 4;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 0.55;
  Matches   19;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGTCGTTCCTGATGC 19
          |||||||||||||||||||
Db      1 TCCATGTCGTTCCTGATGC 19


RESULT 15
US-08-436-714-7
; Sequence 7, Application US/08436714
; Patent No. 5602244
;  GENERAL INFORMATION:
;    APPLICANT:  Marvin H. Caruthers et al
;    TITLE OF INVENTION:  Nucleoside and Polynucleotide
;    TITLE OF INVENTION:  Thiophosphoramidite and Phosphorodithioate Compounds and Proce
;    NUMBER OF SEQUENCES:  8
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Yahwak & Associates
;      STREET:  25 Skytop Drive
;      CITY:  Trumbull
;      STATE:  Connecticut
;      COUNTRY:  USA
;      ZIP:  06611
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  floppy disk
;      COMPUTER:  Macintosh
;      OPERATING SYSTEM:  MS-DOS
;      SOFTWARE:  Microsoft Word 4.0
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/436,714
;      FILING DATE:
;      CLASSIFICATION:  536
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  George M. Yahwak
;      REGISTRATION NUMBER:  26,824
;      REFERENCE/DOCKET NUMBER:  CU 311 BIGCIP
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  (203)268-1951
;      TELEFAX:  (203)268-1951
;  INFORMATION FOR SEQ ID NO:  7:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  20 base pairs
;      TYPE:  nucleic acid
;      STRANDEDNESS:  single
;      TOPOLOGY:  linear
;    MOLECULE TYPE:  DNA
US-08-436-714-7

  Query Match             92.0%;  Score 18.4;  DB 1;  Length 20;
  Best Local Similarity   95.0%;  Pred. No. 1.1;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy      1 TCCATGTCGTTCCTGATGCT 20
          ||||||||| ||||||||||
Db      1 TCCATGTCGGTCCTGATGCT 20


Search completed: March  2, 2003, 00:43:54
Job time : 41 secs
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GenCore version 5.1.4_p5_4578


OM nucleic - nucleic search, using sw model

Run on: March 1, 2003, 22:56:16 ; Search time 43.5 Seconds
(without alignments)
286.721 Million cell updates/sec

Title: US-09-818-918-43
Perfect score: 20
Sequence: 1 tccatgtcgttcctgatgct 20

Scoring table: IDENTITY_NUC
Gapop 10.0 , Gapext 1.0

Searched: 460893 seqs, 311809382 residues

Total number of hits satisfying chosen parameters: 282390

Minimum DB seq length: 0
Maximum DB seq length: 100

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : Published_Applications_NA:*
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2: /cgn2_6/ptodata/2/pubpna/PCT_NEW_PUB.seq:*
3: /cgn2_6/ptodata/2/pubpna/US06_NEW_PUB.seq:*
4: /cgn2_6/ptodata/2/pubpna/US06_PUBCOMB.seq:*
5: /cgn2_6/ptodata/2/pubpna/US07_NEW_PUB.seq:*
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12: /cgn2_6/ptodata/2/pubpna/US10_PUBCOMB.seq:*
13: /cgn2_6/ptodata/2/pubpna/US60_NEW_PUB.seq:*
14: /cgn2_6/ptodata/2/pubpna/US60_PUBCOMB.seq:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

| Result No. | Score | % Query Match | Length | DB | ID | Description |
|---|---|---|---|---|---|---|
| 1 | 20 | 100.0 | 20 | 9 | US-09-800-266A-49 | Sequence 49, Appl |
| 2 | 20 | 100.0 | 20 | 9 | US-09-895-007A-49 | Sequence 49, Appl |
| 3 | 20 | 100.0 | 20 | 9 | US-10-023-909A-49 | Sequence 49, Appl |
| 4 | 20 | 100.0 | 20 | 9 | US-10-074-956-2 | Sequence 2, Appli |
| 5 | 20 | 100.0 | 20 | 9 | US-09-920-313-49 | Sequence 49, Appl |
| c 6 | 20 | 100.0 | 20 | 9 | US-09-888-326-62 | Sequence 62, Appl |
| 7 | 20 | 100.0 | 20 | 9 | US-09-888-326-611 | Sequence 611, App |
| 8 | 20 | 100.0 | 20 | 10 | US-09-824-468-48 | Sequence 48, Appl |
| 9 | 20 | 100.0 | 20 | 10 | US-09-824-468-56 | Sequence 56, Appl |
| 10 | 20 | 100.0 | 20 | 10 | US-09-824-468-57 | Sequence 57, Appl |
| 11 | 20 | 100.0 | 28 | 9 | US-09-888-326-132 | Sequence 132, App |
| 12 | 19 | 95.0 | 20 | 9 | US-09-888-326-610 | Sequence 610, App |
| 13 | 19 | 95.0 | 20 | 9 | US-09-888-326-620 | Sequence 620, App |
| 14 | 18.4 | 92.0 | 20 | 9 | US-09-800-266A-17 | Sequence 17, Appl |
| 15 | 18.4 | 92.0 | 20 | 9 | US-09-800-266A-18 | Sequence 18, Appl |
| 16 | 18.4 | 92.0 | 20 | 9 | US-09-800-266A-19 | Sequence 19, Appl |
| 17 | 18.4 | 92.0 | 20 | 9 | US-09-800-266A-35 | Sequence 35, Appl |
| 18 | 18.4 | 92.0 | 20 | 9 | US-09-800-266A-39 | Sequence 39, Appl |
| 19 | 18.4 | 92.0 | 20 | 9 | US-09-800-266A-40 | Sequence 40, Appl |
| 20 | 18.4 | 92.0 | 20 | 9 | US-09-800-266A-41 | Sequence 41, Appl |
| 21 | 18.4 | 92.0 | 20 | 9 | US-09-846-091-4 | Sequence 4, Appli |
| 22 | 18.4 | 92.0 | 20 | 9 | US-09-895-007A-17 | Sequence 17, Appl |
| 23 | 18.4 | 92.0 | 20 | 9 | US-09-895-007A-18 | Sequence 18, Appl |
| 24 | 18.4 | 92.0 | 20 | 9 | US-09-895-007A-19 | Sequence 19, Appl |
| 25 | 18.4 | 92.0 | 20 | 9 | US-09-895-007A-35 | Sequence 35, Appl |
| 26 | 18.4 | 92.0 | 20 | 9 | US-09-895-007A-39 | Sequence 39, Appl |
| 27 | 18.4 | 92.0 | 20 | 9 | US-09-895-007A-40 | Sequence 40, Appl |
| 28 | 18.4 | 92.0 | 20 | 9 | US-09-895-007A-41 | Sequence 41, Appl |
| 29 | 18.4 | 92.0 | 20 | 9 | US-10-023-909A-17 | Sequence 17, Appl |
| 30 | 18.4 | 92.0 | 20 | 9 | US-10-023-909A-18 | Sequence 18, Appl |
| 31 | 18.4 | 92.0 | 20 | 9 | US-10-023-909A-19 | Sequence 19, Appl |
| 32 | 18.4 | 92.0 | 20 | 9 | US-10-023-909A-35 | Sequence 35, Appl |
| 33 | 18.4 | 92.0 | 20 | 9 | US-10-023-909A-39 | Sequence 39, Appl |
| 34 | 18.4 | 92.0 | 20 | 9 | US-10-023-909A-40 | Sequence 40, Appl |
| 35 | 18.4 | 92.0 | 20 | 9 | US-10-023-909A-41 | Sequence 41, Appl |
| 36 | 18.4 | 92.0 | 20 | 9 | US-09-920-313-17 | Sequence 17, Appl |
| 37 | 18.4 | 92.0 | 20 | 9 | US-09-920-313-18 | Sequence 18, Appl |
| 38 | 18.4 | 92.0 | 20 | 9 | US-09-920-313-19 | Sequence 19, Appl |
| 39 | 18.4 | 92.0 | 20 | 9 | US-09-920-313-35 | Sequence 35, Appl |
| 40 | 18.4 | 92.0 | 20 | 9 | US-09-920-313-39 | Sequence 39, Appl |
| 41 | 18.4 | 92.0 | 20 | 9 | US-09-920-313-40 | Sequence 40, Appl |
| 42 | 18.4 | 92.0 | 20 | 9 | US-09-920-313-41 | Sequence 41, Appl |
| 43 | 18.4 | 92.0 | 20 | 9 | US-10-205-150-7 | Sequence 7, Appli |
| 44 | 18.4 | 92.0 | 20 | 9 | US-10-011-635A-1 | Sequence 1, Appli |
| 45 | 18.4 | 92.0 | 20 | 9 | US-09-415-142-21 | Sequence 21, Appl |

ALIGNMENTS

RESULT 1
US-09-800-266A-49
; Sequence 49, Application US/09800266A
; Patent No. US20020156033A1
; GENERAL INFORMATION:
; APPLICANT: Bratzler, Robert L.
; APPLICANT: Petersen, Deanna M.
; TITLE OF INVENTION: Immunostimulatory Nucleic Acids and
; TITLE OF INVENTION: Cancer Medicament Combination Therapy for the Treatment of
; TITLE OF INVENTION: Cancer
; FILE REFERENCE: C1037/7017(HCL/MAT)
; CURRENT APPLICATION NUMBER: US/09/800,266A
; CURRENT FILING DATE: 2001-03-05
; PRIOR APPLICATION NUMBER: US 60/187,214
; PRIOR FILING DATE: 2000-03-03
; NUMBER OF SEQ ID NOS: 146
; SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 49
; LENGTH: 20
; TYPE: DNA
; ORGANISM: Artificial Sequence
; FEATURE:
; OTHER INFORMATION: Synthetic Sequence
US-09-800-266A-49

Query Match 100.0%; Score 20; DB 9; Length 20;
Best Local Similarity 100.0%; Pred. No. 0.67;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 TCCATGTCGTTCCTGATGCT 20
||||||||||||||||||||
Db 1 TCCATGTCGTTCCTGATGCT 20

RESULT 2
US-09-895-007A-49
; Sequence 49, Application US/09895007A
; Patent No. US20020165178A1
; GENERAL INFORMATION:
; APPLICANT: Schetter, Christian
; APPLICANT: Bratzler, Robert L.
; APPLICANT: Petersen, Deanna M.

```
;  TITLE OF INVENTION: IMMUNOSTIMULATORY NUCLEIC ACIDS FOR THE
;  TITLE OF INVENTION:  TREATMENT OF ANEMIA, THROMBOCYTOPENIA, AND NEUTROPENIA
;  FILE REFERENCE: C1041/7014 (AWS)
;  CURRENT APPLICATION NUMBER: US/09/895,007A
;  CURRENT FILING DATE:  2001-06-28
;  PRIOR APPLICATION NUMBER: US 60/214,368
;  PRIOR FILING DATE: 2000-06-28
;  NUMBER OF SEQ ID NOS: 133
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 49
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic oligonucleotide
US-09-895-007A-49

  Query Match             100.0%;  Score 20;  DB 9;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 0.67;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGTCGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATGTCGTTCCTGATGCT 20


RESULT 3
US-10-023-909A-49
; Sequence 49, Application US/10023909A
; Patent No. US20020164341A1
; GENERAL INFORMATION:
;  APPLICANT: Davis, Heather L.
;  APPLICANT:  Schorr, Joachim
;  APPLICANT:  Krieg, Arthur M.
;  TITLE OF INVENTION: Use of Nucleic Acids Containing
;  TITLE OF INVENTION:  Unmethylated CpG Dinucleotide as an Adjuvant
;  FILE REFERENCE: C1039/7058/HCL
;  CURRENT APPLICATION NUMBER: US/10/023,909A
;  CURRENT FILING DATE:  2001-12-18
;  PRIOR APPLICATION NUMBER: US 09/325,193
;  PRIOR FILING DATE: 1999-06-03
;  PRIOR APPLICATION NUMBER: US 09/154,614
;  PRIOR FILING DATE: 1998-09-16
;  PRIOR APPLICATION NUMBER: PCT/US98/04703
;  PRIOR FILING DATE: 1998-03-10
;  PRIOR APPLICATION NUMBER: US 60/040,376
;  PRIOR FILING DATE: 1997-03-10
;  NUMBER OF SEQ ID NOS: 98
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 49
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic Oligonucleotide
US-10-023-909A-49

  Query Match             100.0%;  Score 20;  DB 9;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 0.67;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGTCGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATGTCGTTCCTGATGCT 20


RESULT 4
US-10-074-956-2
; Sequence 2, Application US/10074956
; Publication No. US20020193332A1
; GENERAL INFORMATION:
;  APPLICANT: Hedley, Mary Lynne
;  TITLE OF INVENTION: METHODS OF TREATING BLADDER DISORDERS
;  FILE REFERENCE: 08191-022001
;  CURRENT APPLICATION NUMBER: US/10/074,956
;  CURRENT FILING DATE:  2002-06-10
;  PRIOR APPLICATION NUMBER: 60/268,175
;  PRIOR FILING DATE: 2001-02-12
;  NUMBER OF SEQ ID NOS: 29
;  SOFTWARE: FastSEQ for Windows Version 4.0
; SEQ ID NO 2
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Homo sapiens
US-10-074-956-2

  Query Match             100.0%;  Score 20;  DB 9;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 0.67;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGTCGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATGTCGTTCCTGATGCT 20


RESULT 5
US-09-920-313-49
; Sequence 49, Application US/09920313
; Publication No. US20020198165A1
; GENERAL INFORMATION:
;  APPLICANT: Bratzler, Robert L.
;  APPLICANT:  Petersen, Deanna M.
;  TITLE OF INVENTION: Nucleic Acids for the Prevention and
;  TITLE OF INVENTION:  Treatment of Gastric Ulcers
;  FILE REFERENCE: C1037/7019 (HCL/MAT)
;  CURRENT APPLICATION NUMBER: US/09/920,313
;  CURRENT FILING DATE:  2001-08-01
;  PRIOR APPLICATION NUMBER: US 60/222,248
;  PRIOR FILING DATE: 2001-08-08
;  NUMBER OF SEQ ID NOS: 148
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 49
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic Sequence
US-09-920-313-49

  Query Match             100.0%;  Score 20;  DB 9;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 0.67;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGTCGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATGTCGTTCCTGATGCT 20


RESULT 6
US-09-888-326-62/c
; Sequence 62, Application US/09888326
; Publication No. US20030026801A1
; GENERAL INFORMATION:
;  APPLICANT: Weiner, George
;  APPLICANT:  Hartmann, Gunther
;  TITLE OF INVENTION: Methods for Enhancing Antibody-Induced
;  TITLE OF INVENTION:  Cell Lysis and Treating Cancer
;  FILE REFERENCE: C1039/7052 (AWS)
;  CURRENT APPLICATION NUMBER: US/09/888,326
;  CURRENT FILING DATE:  2001-06-22
;  PRIOR APPLICATION NUMBER: US 60/213,346
;  PRIOR FILING DATE: 2000-06-22
;  NUMBER OF SEQ ID NOS: 848
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 62
;   LENGTH: 20
```

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;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic oligonucleotide
;   NAME/KEY: misc_feature
;   LOCATION: (0)...(0)
;   OTHER INFORMATION: phosphodiester backbone
US-09-888-326-62

  Query Match             100.0%;  Score 20;  DB 9;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 0.67;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGTCGTTCCTGATGCT 20
          ||||||||||||||||||||
Db     20 TCCATGTCGTTCCTGATGCT 1


RESULT 7
US-09-888-326-611
; Sequence 611, Application US/09888326
; Publication No. US20030026801A1
; GENERAL INFORMATION:
;  APPLICANT: Weiner, George
;  APPLICANT:  Hartmann, Gunther
;  TITLE OF INVENTION: Methods for Enhancing Antibody-Induced
;  TITLE OF INVENTION:  Cell Lysis and Treating Cancer
;  FILE REFERENCE: C1039/7052 (AWS)
;  CURRENT APPLICATION NUMBER: US/09/888,326
;  CURRENT FILING DATE:  2001-06-22
;  PRIOR APPLICATION NUMBER: US 60/213,346
;  PRIOR FILING DATE: 2000-06-22
;  NUMBER OF SEQ ID NOS: 848
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 611
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic oligonucleotide
;   NAME/KEY: misc_feature
;   LOCATION: (0)...(0)
;   OTHER INFORMATION: phosphodiester backbone
US-09-888-326-611

  Query Match             100.0%;  Score 20;  DB 9;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 0.67;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGTCGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATGTCGTTCCTGATGCT 20


RESULT 8
US-09-824-468-48
; Sequence 48, Application US/09824468
; Patent No. US20020064515A1
; GENERAL INFORMATION:
;  APPLICANT: Krieg, Arthur M.
;  APPLICANT:  Weiner, George
;  TITLE OF INVENTION: Methods and Products for Stimulating the
;  TITLE OF INVENTION:  Immune System Using Immunotherapeutic Oligonucleotides and
;  TITLE OF INVENTION:  Cytokines
;  FILE REFERENCE: C1039/7026/HCL
;  CURRENT APPLICATION NUMBER: US/09/824,468
;  CURRENT FILING DATE:  2001-04-02
;  PRIOR APPLICATION NUMBER: 09/286,098
;  PRIOR FILING DATE: 1999-04-02
;  NUMBER OF SEQ ID NOS: 105
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 48
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic Sequence
US-09-824-468-48

  Query Match             100.0%;  Score 20;  DB 10;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 0.67;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGTCGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATGTCGTTCCTGATGCT 20


RESULT 9
US-09-824-468-56
; Sequence 56, Application US/09824468
; Patent No. US20020064515A1
; GENERAL INFORMATION:
;  APPLICANT: Krieg, Arthur M.
;  APPLICANT:  Weiner, George
;  TITLE OF INVENTION: Methods and Products for Stimulating the
;  TITLE OF INVENTION:  Immune System Using Immunotherapeutic Oligonucleotides and
;  TITLE OF INVENTION:  Cytokines
;  FILE REFERENCE: C1039/7026/HCL
;  CURRENT APPLICATION NUMBER: US/09/824,468
;  CURRENT FILING DATE:  2001-04-02
;  PRIOR APPLICATION NUMBER: 09/286,098
;  PRIOR FILING DATE: 1999-04-02
;  NUMBER OF SEQ ID NOS: 105
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 56
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic Sequence
US-09-824-468-56

  Query Match             100.0%;  Score 20;  DB 10;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 0.67;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGTCGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATGTCGTTCCTGATGCT 20


RESULT 10
US-09-824-468-57
; Sequence 57, Application US/09824468
; Patent No. US20020064515A1
; GENERAL INFORMATION:
;  APPLICANT: Krieg, Arthur M.
;  APPLICANT:  Weiner, George
;  TITLE OF INVENTION: Methods and Products for Stimulating the
;  TITLE OF INVENTION:  Immune System Using Immunotherapeutic Oligonucleotides and
;  TITLE OF INVENTION:  Cytokines
;  FILE REFERENCE: C1039/7026/HCL
;  CURRENT APPLICATION NUMBER: US/09/824,468
;  CURRENT FILING DATE:  2001-04-02
;  PRIOR APPLICATION NUMBER: 09/286,098
;  PRIOR FILING DATE: 1999-04-02
;  NUMBER OF SEQ ID NOS: 105
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 57
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic Sequence
;   NAME/KEY: modified_base
```

```
;   LOCATION: (8)...(8)
;   OTHER INFORMATION: m5c
US-09-824-468-57

  Query Match             100.0%;  Score 20;  DB 10;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 0.67;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGTCGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATGTCGTTCCTGATGCT 20


RESULT 11
US-09-888-326-132
; Sequence 132, Application US/09888326
; Publication No. US20030026801A1
; GENERAL INFORMATION:
;  APPLICANT: Weiner, George
;  APPLICANT:  Hartmann, Gunther
;  TITLE OF INVENTION: Methods for Enhancing Antibody-Induced
;  TITLE OF INVENTION:  Cell Lysis and Treating Cancer
;  FILE REFERENCE: C1039/7052 (AWS)
;  CURRENT APPLICATION NUMBER: US/09/888,326
;  CURRENT FILING DATE:  2001-06-22
;  PRIOR APPLICATION NUMBER: US 60/213,346
;  PRIOR FILING DATE: 2000-06-22
;  NUMBER OF SEQ ID NOS: 848
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 132
;   LENGTH: 28
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic oligonucleotide
;   NAME/KEY: misc_feature
;   LOCATION: (0)...(0)
;   OTHER INFORMATION: chimeric phosphorothioate/phosphodiester backbone
;   OTHER INFORMATION: with phosphodiester on 5' end
;   NAME/KEY: misc_feature
;   LOCATION: (1)...(1)
;   OTHER INFORMATION: biotinylated at 5' end
US-09-888-326-132

  Query Match             100.0%;  Score 20;  DB 9;  Length 28;
  Best Local Similarity   100.0%;  Pred. No. 0.68;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGTCGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      5 TCCATGTCGTTCCTGATGCT 24


RESULT 12
US-09-888-326-610
; Sequence 610, Application US/09888326
; Publication No. US20030026801A1
; GENERAL INFORMATION:
;  APPLICANT: Weiner, George
;  APPLICANT:  Hartmann, Gunther
;  TITLE OF INVENTION: Methods for Enhancing Antibody-Induced
;  TITLE OF INVENTION:  Cell Lysis and Treating Cancer
;  FILE REFERENCE: C1039/7052 (AWS)
;  CURRENT APPLICATION NUMBER: US/09/888,326
;  CURRENT FILING DATE:  2001-06-22
;  PRIOR APPLICATION NUMBER: US 60/213,346
;  PRIOR FILING DATE: 2000-06-22
;  NUMBER OF SEQ ID NOS: 848
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 610
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic oligonucleotide
;   NAME/KEY: misc_feature
;   LOCATION: (0)...(0)
;   OTHER INFORMATION: phosphodiester backbone
US-09-888-326-610

  Query Match             95.0%;  Score 19;  DB 9;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 2;
  Matches   19;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGTCGTTCCTGATGC 19
          |||||||||||||||||||
Db      1 TCCATGTCGTTCCTGATGC 19


RESULT 13
US-09-888-326-620
; Sequence 620, Application US/09888326
; Publication No. US20030026801A1
; GENERAL INFORMATION:
;  APPLICANT: Weiner, George
;  APPLICANT:  Hartmann, Gunther
;  TITLE OF INVENTION: Methods for Enhancing Antibody-Induced
;  TITLE OF INVENTION:  Cell Lysis and Treating Cancer
;  FILE REFERENCE: C1039/7052 (AWS)
;  CURRENT APPLICATION NUMBER: US/09/888,326
;  CURRENT FILING DATE:  2001-06-22
;  PRIOR APPLICATION NUMBER: US 60/213,346
;  PRIOR FILING DATE: 2000-06-22
;  NUMBER OF SEQ ID NOS: 848
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 620
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic oligonucleotide
;   NAME/KEY: misc_feature
;   LOCATION: (0)...(0)
;   OTHER INFORMATION: phosphodiester backbone
;   NAME/KEY: modified_base
;   LOCATION: (8)...(8)
;   OTHER INFORMATION: m5c
US-09-888-326-620

  Query Match             95.0%;  Score 19;  DB 9;  Length 20;
  Best Local Similarity   95.0%;  Pred. No. 2;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy      1 TCCATGTCGTTCCTGATGCT 20
          ||||||| ||||||||||||
Db      1 TCCATGTNGTTCCTGATGCT 20


RESULT 14
US-09-800-266A-17
; Sequence 17, Application US/09800266A
; Patent No. US20020156033A1
; GENERAL INFORMATION:
;  APPLICANT: Bratzler, Robert L.
;  APPLICANT:  Petersen, Deanna M.
;  TITLE OF INVENTION: Immunostimulatory Nucleic Acids and
;  TITLE OF INVENTION:  Cancer Medicament Combination Therapy for the Treatment of
;  TITLE OF INVENTION:  Cancer
;  FILE REFERENCE: C1037/7017(HCL/MAT)
;  CURRENT APPLICATION NUMBER: US/09/800,266A
;  CURRENT FILING DATE:  2001-03-05
;  PRIOR APPLICATION NUMBER: US 60/187,214
;  PRIOR FILING DATE: 2000-03-03
;  NUMBER OF SEQ ID NOS: 146
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 17
```

; LENGTH: 20
; TYPE: DNA
; ORGANISM: Artificial Sequence
; FEATURE:
; OTHER INFORMATION: Synthetic Sequence
US-09-800-266A-17

Query Match 92.0%; Score 18.4; DB 9; Length 20;
Best Local Similarity 95.0%; Pred. No. 4;
Matches 19; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

Qy 1 TCCATGTCGTTCCTGATGCT 20
||||||||| |||||||||
Db 1 TCCATGTCGGTCCTGATGCT 20

RESULT 15
US-09-800-266A-18
; Sequence 18, Application US/09800266A
; Patent No. US20020156033A1
; GENERAL INFORMATION:
; APPLICANT: Bratzler, Robert L.
; APPLICANT: Petersen, Deanna M.
; TITLE OF INVENTION: Immunostimulatory Nucleic Acids and
; TITLE OF INVENTION: Cancer Medicament Combination Therapy for the Treatment of
; TITLE OF INVENTION: Cancer
; FILE REFERENCE: C1037/7017(HCL/MAT)
; CURRENT APPLICATION NUMBER: US/09/800,266A
; CURRENT FILING DATE: 2001-03-05
; PRIOR APPLICATION NUMBER: US 60/187,214
; PRIOR FILING DATE: 2000-03-03
; NUMBER OF SEQ ID NOS: 146
; SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 18
; LENGTH: 20
; TYPE: DNA
; ORGANISM: Artificial Sequence
; FEATURE:
; OTHER INFORMATION: Synthetic Sequence
US-09-800-266A-18

Query Match 92.0%; Score 18.4; DB 9; Length 20;
Best Local Similarity 95.0%; Pred. No. 4;
Matches 19; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

Qy 1 TCCATGTCGTTCCTGATGCT 20
||||||||| |||||||||
Db 1 TCCATGTCGGTCCTGATGCT 20

Search completed: March 2, 2003, 00:47:01
Job time : 43.5 secs

GenCore version 5.1.4_p5_4578


OM nucleic - nucleic search, using sw model

Run on: March 1, 2003, 20:23:56 ; Search time 363.75 Seconds
(without alignments)
1600.154 Million cell updates/sec

Title: US-09-818-918-44
Perfect score: 20
Sequence: 1 tccatgacgttcctgatgct 20

Scoring table: IDENTITY_NUC
Gapop 10.0 , Gapext 1.0

Searched: 2054640 seqs, 14551402878 residues

Total number of hits satisfying chosen parameters: 4109280

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : GenEmbl:*
1: gb_ba:*
2: gb_htg:*
3: gb_in:*
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12: gb_sy:*
13: gb_un:*
14: gb_vi:*
15: em_ba:*
16: em_fun:*
17: em_hum:*
18: em_in:*
19: em_mu:*
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21: em_or:*
22: em_ov:*
23: em_pat:*
24: em_ph:*
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26: em_ro:*
27: em_sts:*
28: em_un:*
29: em_vi:*
30: em_htg_hum:*
31: em_htg_inv:*
32: em_htg_other:*
33: em_htg_mus:*
34: em_htg_pln:*
35: em_htg_rod:*
36: em_htg_mam:*
37: em_htg_vrt:*
38: em_sy:*
39: em_htgo_hum:*
40: em_htgo_mus:*
41: em_htgo_other:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

| Result No. | Score | % Query Match | Length | DB | ID | Description |
|---|---|---|---|---|---|---|
| 1 | 20 | 100.0 | 20 | 6 | A89782 | A89782 Sequence 4 |
| 2 | 20 | 100.0 | 20 | 6 | A89783 | A89783 Sequence 5 |
| 3 | 20 | 100.0 | 20 | 6 | A90869 | A90869 Sequence 4 |
| 4 | 20 | 100.0 | 20 | 6 | A90870 | A90870 Sequence 5 |
| 5 | 20 | 100.0 | 20 | 6 | A93512 | A93512 Sequence 5 |
| 6 | 20 | 100.0 | 20 | 6 | A93521 | A93521 Sequence 14 |
| 7 | 20 | 100.0 | 20 | 6 | AR078394 | AR078394 Sequence |
| 8 | 20 | 100.0 | 20 | 6 | AR096710 | AR096710 Sequence |
| 9 | 20 | 100.0 | 20 | 6 | AR135054 | AR135054 Sequence |
| 10 | 20 | 100.0 | 20 | 6 | AR140448 | AR140448 Sequence |
| 11 | 20 | 100.0 | 20 | 6 | AR140476 | AR140476 Sequence |
| 12 | 20 | 100.0 | 20 | 6 | AR140485 | AR140485 Sequence |
| 13 | 20 | 100.0 | 20 | 6 | AR140495 | AR140495 Sequence |
| 14 | 20 | 100.0 | 20 | 6 | AR146312 | AR146312 Sequence |
| 15 | 20 | 100.0 | 20 | 6 | AR154678 | AR154678 Sequence |
| 16 | 20 | 100.0 | 20 | 6 | AR182896 | AR182896 Sequence |
| 17 | 20 | 100.0 | 20 | 6 | AR182907 | AR182907 Sequence |
| 18 | 20 | 100.0 | 20 | 6 | AX023425 | AX023425 Sequence |
| 19 | 20 | 100.0 | 20 | 6 | AX040172 | AX040172 Sequence |
| 20 | 20 | 100.0 | 20 | 6 | AX104566 | AX104566 Sequence |
| 21 | 20 | 100.0 | 20 | 6 | AX104614 | AX104614 Sequence |
| 22 | 20 | 100.0 | 20 | 6 | AX104673 | AX104673 Sequence |
| 23 | 20 | 100.0 | 20 | 6 | AX105185 | AX105185 Sequence |
| 24 | 20 | 100.0 | 20 | 6 | AX135638 | AX135638 Sequence |
| 25 | 20 | 100.0 | 20 | 6 | AX166344 | AX166344 Sequence |
| 26 | 20 | 100.0 | 20 | 6 | AX299121 | AX299121 Sequence |
| 27 | 20 | 100.0 | 20 | 6 | AX342402 | AX342402 Sequence |
| 28 | 20 | 100.0 | 20 | 6 | AX342429 | AX342429 Sequence |
| 29 | 20 | 100.0 | 20 | 6 | AX342462 | AX342462 Sequence |
| 30 | 20 | 100.0 | 20 | 6 | AX351731 | AX351731 Sequence |
| 31 | 20 | 100.0 | 20 | 6 | AX351797 | AX351797 Sequence |
| 32 | 20 | 100.0 | 20 | 6 | AX351818 | AX351818 Sequence |
| 33 | 20 | 100.0 | 20 | 6 | AX351842 | AX351842 Sequence |
| 34 | 20 | 100.0 | 20 | 6 | AX351869 | AX351869 Sequence |
| 35 | 20 | 100.0 | 20 | 6 | AX351890 | AX351890 Sequence |
| 36 | 20 | 100.0 | 20 | 6 | AX352110 | AX352110 Sequence |
| 37 | 20 | 100.0 | 20 | 6 | AX352129 | AX352129 Sequence |
| 38 | 20 | 100.0 | 20 | 6 | AX355099 | AX355099 Sequence |
| 39 | 20 | 100.0 | 20 | 6 | AX355538 | AX355538 Sequence |
| 40 | 20 | 100.0 | 20 | 6 | AX355539 | AX355539 Sequence |
| 41 | 20 | 100.0 | 20 | 6 | AX455607 | AX455607 Sequence |
| 42 | 20 | 100.0 | 20 | 6 | AX455730 | AX455730 Sequence |
| 43 | 20 | 100.0 | 20 | 6 | AX468487 | AX468487 Sequence |
| 44 | 20 | 100.0 | 20 | 6 | BD009055 | BD009055 Immunosti |
| 45 | 20 | 100.0 | 21 | 6 | AX351995 | AX351995 Sequence |

ALIGNMENTS

RESULT 1
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LOCUS A89782 20 bp DNA linear PAT 22-JAN-2000
DEFINITION Sequence 4 from Patent WO9832462.
ACCESSION A89782
VERSION A89782.1 GI:6738296
KEYWORDS .
SOURCE unidentified.
ORGANISM unidentified
unclassified.
REFERENCE 1 (bases 1 to 20)
AUTHORS Lipford,G.B. and Heeg,K.
TITLE PHARMACEUTICAL COMPOSITIONS COMPRISING A POLYNUCLEOTIDE AND OPTIONALLY AN ANTIGEN ESPECIALLY FOR VACCINATION
JOURNAL Patent: WO 9832462-A 4 30-JUL-1998;

LIPFORD GRAYSON B (DE); HEEG KLAUS (DE)
FEATURES Location/Qualifiers
source 1. .20
/organism="unidentified"
/db_xref="taxon:32644"
BASE COUNT 3 a 6 c 4 g 7 t
ORIGIN

Query Match 100.0%; Score 20; DB 6; Length 20;
Best Local Similarity 100.0%; Pred. No. 2.7;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 TCCATGACGTTCCTGATGCT 20
||||||||||||||||||||
Db 1 TCCATGACGTTCCTGATGCT 20

RESULT 2
A89783
LOCUS A89783 20 bp DNA linear PAT 22-JAN-2000
DEFINITION Sequence 5 from Patent WO9832462.
ACCESSION A89783
VERSION A89783.1 GI:6738297
KEYWORDS .
SOURCE unidentified.
ORGANISM unidentified
unclassified.
REFERENCE 1 (bases 1 to 20)
AUTHORS Lipford,G.B. and Heeg,K.
TITLE PHARMACEUTICAL COMPOSITIONS COMPRISING A POLYNUCLEOTIDE AND OPTIONALLY AN ANTIGEN ESPECIALLY FOR VACCINATION
JOURNAL Patent: WO 9832462-A 5 30-JUL-1998;
LIPFORD GRAYSON B (DE); HEEG KLAUS (DE)
FEATURES Location/Qualifiers
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Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

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Db 1 TCCATGACGTTCCTGATGCT 20

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A90869
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DEFINITION Sequence 4 from Patent EP0855184.
ACCESSION A90869
VERSION A90869.1 GI:6739263
KEYWORDS .
SOURCE unidentified.
ORGANISM unidentified
unclassified.
REFERENCE 1 (bases 1 to 20)
AUTHORS Heeg,K.P. and Lipford,G.B.
TITLE Pharmaceutical composition comprising a polynucleotide and an antigen especially for vaccination
JOURNAL Patent: EP 0855184-A 4 29-JUL-1998;
HEEG KLAUS PROF DR (DE); LIPFORD GRAYSON B DR (DE)
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BASE COUNT 3 a 6 c 4 g 7 t
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Db 1 TCCATGACGTTCCTGATGCT 20

RESULT 4
A90870
LOCUS A90870 20 bp DNA linear PAT 22-JAN-2000
DEFINITION Sequence 5 from Patent EP0855184.
ACCESSION A90870
VERSION A90870.1 GI:6739264
KEYWORDS .
SOURCE unidentified.
ORGANISM unidentified
unclassified.
REFERENCE 1 (bases 1 to 20)
AUTHORS Heeg,K.P. and Lipford,G.B.
TITLE Pharmaceutical composition comprising a polynucleotide and an antigen especially for vaccination
JOURNAL Patent: EP 0855184-A 5 29-JUL-1998;
HEEG KLAUS PROF DR (DE); LIPFORD GRAYSON B DR (DE)
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RESULT 5
A93512
LOCUS A93512 20 bp DNA linear PAT 22-JAN-2000
DEFINITION Sequence 5 from Patent WO9740163.
ACCESSION A93512
VERSION A93512.1 GI:6741731
KEYWORDS .
SOURCE unidentified.
ORGANISM unidentified
unclassified.
REFERENCE 1 (bases 1 to 20)
AUTHORS Colpan,M. and Schorr,J.
TITLE NUCLEIC ACID VACCINATION FOR PARVOVIRAL INFECTIONS
JOURNAL Patent: WO 9740163-A 5 30-OCT-1997;
COLPAN METIN (DE); SCHORR JOACHIM (DE)
FEATURES Location/Qualifiers
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A93521

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DEFINITION  Sequence 14 from Patent WO9740163.
ACCESSION   A93521
VERSION     A93521.1  GI:6741738
KEYWORDS    .
SOURCE      unidentified.
  ORGANISM  unidentified
            unclassified.
REFERENCE   1  (bases 1 to 20)
  AUTHORS   Colpan,M. and Schorr,J.
  TITLE     NUCLEIC ACID VACCINATION FOR PARVOVIRAL INFECTIONS
  JOURNAL   Patent: WO 9740163-A 14 30-OCT-1997;
            COLPAN METIN (DE); SCHORR JOACHIM (DE)
FEATURES             Location/Qualifiers
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Db      1 TCCATGACGTTCCTGATGCT 20


RESULT 7
AR078394
LOCUS       AR078394                  20 bp    DNA     linear   PAT 31-AUG-2000
DEFINITION  Sequence 11 from patent US 5962636.
ACCESSION   AR078394
VERSION     AR078394.1  GI:10005140
KEYWORDS    .
SOURCE      Unknown.
  ORGANISM  Unknown.
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REFERENCE   1  (bases 1 to 20)
  AUTHORS   Bachmaier,K., Hessel,A.John., Neu,N. and Penninger,J.Martin.
  TITLE     Peptides capable of modulating inflammatory heart disease
  JOURNAL   Patent: US 5962636-A 11 05-OCT-1999;
FEATURES             Location/Qualifiers
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BASE COUNT        3 a      6 c      4 g      7 t
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Qy      1 TCCATGACGTTCCTGATGCT 20
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Db      1 TCCATGACGTTCCTGATGCT 20


RESULT 8
AR096710
LOCUS       AR096710                  20 bp    DNA     linear   PAT 08-SEP-2000
DEFINITION  Sequence 25 from patent US 6008200.
ACCESSION   AR096710
VERSION     AR096710.1  GI:10025745
KEYWORDS    .
SOURCE      Unknown.
  ORGANISM  Unknown.
            Unclassified.
REFERENCE   1  (bases 1 to 20)
  AUTHORS   Krieg,A.M.
  TITLE     Immunomodulatory oligonucleotides
  JOURNAL   Patent: US 6008200-A 25 28-DEC-1999;
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Qy      1 TCCATGACGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATGACGTTCCTGATGCT 20


RESULT 9
AR135054
LOCUS       AR135054                  20 bp    DNA     linear   PAT 16-MAY-2001
DEFINITION  Sequence 25 from patent US 6194388.
ACCESSION   AR135054
VERSION     AR135054.1  GI:14123959
KEYWORDS    .
SOURCE      Unknown.
  ORGANISM  Unknown.
            Unclassified.
REFERENCE   1  (bases 1 to 20)
  AUTHORS   Krieg,A.M., Klinman,D. and Steinberg,A.D.
  TITLE     Immunomodulatory oligonucleotides
  JOURNAL   Patent: US 6194388-A 25 27-FEB-2001;
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BASE COUNT        3 a      6 c      4 g      7 t
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Qy      1 TCCATGACGTTCCTGATGCT 20
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Db      1 TCCATGACGTTCCTGATGCT 20


RESULT 10
AR140448
LOCUS       AR140448                  20 bp    DNA     linear   PAT 16-JUN-2001
DEFINITION  Sequence 7 from patent US 6207646.
ACCESSION   AR140448
VERSION     AR140448.1  GI:14482944
KEYWORDS    .
SOURCE      Unknown.
  ORGANISM  Unknown.
            Unclassified.
REFERENCE   1  (bases 1 to 20)
  AUTHORS   Krieg,A.M., Kline,J., Klinman,D. and Steinberg,A.D.
  TITLE     Immunostimulatory nucleic acid molecules
  JOURNAL   Patent: US 6207646-A 7 27-MAR-2001;
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BASE COUNT        3 a      6 c      4 g      7 t
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Db      1 TCCATGACGTTCCTGATGCT 20


RESULT 11
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AR140476
LOCUS       AR140476                 20 bp    DNA     linear   PAT 16-JUN-2001
DEFINITION  Sequence 35 from patent US 6207646.
ACCESSION   AR140476
VERSION     AR140476.1  GI:14482972
KEYWORDS    .
SOURCE      Unknown.
  ORGANISM  Unknown.
            Unclassified.
REFERENCE   1  (bases 1 to 20)
  AUTHORS   Krieg,A.M., Kline,J., Klinman,D. and Steinberg,A.D.
  TITLE     Immunostimulatory nucleic acid molecules
  JOURNAL   Patent: US 6207646-A 35 27-MAR-2001;
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Db      1 TCCATGACGTTCCTGATGCT 20


RESULT 12
AR140485
LOCUS       AR140485                 20 bp    DNA     linear   PAT 16-JUN-2001
DEFINITION  Sequence 44 from patent US 6207646.
ACCESSION   AR140485
VERSION     AR140485.1  GI:14482981
KEYWORDS    .
SOURCE      Unknown.
  ORGANISM  Unknown.
            Unclassified.
REFERENCE   1  (bases 1 to 20)
  AUTHORS   Krieg,A.M., Kline,J., Klinman,D. and Steinberg,A.D.
  TITLE     Immunostimulatory nucleic acid molecules
  JOURNAL   Patent: US 6207646-A 44 27-MAR-2001;
FEATURES             Location/Qualifiers
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BASE COUNT        3 a      6 c      4 g      7 t
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Db      1 TCCATGACGTTCCTGATGCT 20


RESULT 13
AR140495
LOCUS       AR140495                 20 bp    DNA     linear   PAT 16-JUN-2001
DEFINITION  Sequence 54 from patent US 6207646.
ACCESSION   AR140495
VERSION     AR140495.1  GI:14482991
KEYWORDS    .
SOURCE      Unknown.
  ORGANISM  Unknown.
            Unclassified.
REFERENCE   1  (bases 1 to 20)
  AUTHORS   Krieg,A.M., Kline,J., Klinman,D. and Steinberg,A.D.
  TITLE     Immunostimulatory nucleic acid molecules
  JOURNAL   Patent: US 6207646-A 54 27-MAR-2001;
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Db      1 TCCATGACGTTCCTGATGCT 20


RESULT 14
AR146312
LOCUS       AR146312                 20 bp    DNA     linear   PAT 08-AUG-2001
DEFINITION  Sequence 24 from patent US 6218371.
ACCESSION   AR146312
VERSION     AR146312.1  GI:15109501
KEYWORDS    .
SOURCE      Unknown.
  ORGANISM  Unknown.
            Unclassified.
REFERENCE   1  (bases 1 to 20)
  AUTHORS   Krieg,A.M. and Weiner,G.
  TITLE     Methods and products for stimulating the immune system using
            immunotherapeutic oligonucleotides and cytokines
  JOURNAL   Patent: US 6218371-A 24 17-APR-2001;
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Db      1 TCCATGACGTTCCTGATGCT 20


RESULT 15
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DEFINITION  Sequence 7 from patent US 6239116.
ACCESSION   AR154678
VERSION     AR154678.1  GI:15122731
KEYWORDS    .
SOURCE      Unknown.
  ORGANISM  Unknown.
            Unclassified.
REFERENCE   1  (bases 1 to 20)
  AUTHORS   Krieg,A.M. and Kline,J.N.
  TITLE     Immunostimulatory nucleic acid molecules
  JOURNAL   Patent: US 6239116-A 7 29-MAY-2001;
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Job time : 364.75 secs

GenCore version 5.1.4_p5_4578


OM nucleic - nucleic search, using sw model

Run on: March 1, 2003, 19:11:55 ; Search time 147.25 Seconds
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Title: US-09-818-918-44
Perfect score: 20
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Scoring table: IDENTITY_NUC
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Searched: 2185239 seqs, 1125999159 residues

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Listing first 45 summaries

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Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

| Result No. | Score | % Query Match | Length | DB | ID | Description |
|---|---|---|---|---|---|---|
| 1 | 20 | 100.0 | 20 | 18 | AAT88792 | Synthetic phosphor |
| 2 | 20 | 100.0 | 20 | 19 | AAV45995 | Immune adjuvant Cp |
| 3 | 20 | 100.0 | 20 | 19 | AAV45996 | Immune adjuvant Cp |
| 4 | 20 | 100.0 | 20 | 19 | AAV27708 | Immunostimulatory |
| 5 | 20 | 100.0 | 20 | 19 | AAV27700 | Immunostimulatory |
| 6 | 20 | 100.0 | 20 | 19 | AAV27651 | Immunostimulatory |
| 7 | 20 | 100.0 | 20 | 20 | AAZ41879 | IL-12 secretion in |
| 8 | 20 | 100.0 | 20 | 20 | AAZ28190 | Chlamydia trachoma |
| 9 | 20 | 100.0 | 20 | 20 | AAV72500 | CpG motif containi |
| 10 | 20 | 100.0 | 20 | 21 | AAC60281 | Immunostimulatory |
| 11 | 20 | 100.0 | 20 | 21 | AAA71935 | Murine Th1 cells i |
| 12 | 20 | 100.0 | 20 | 21 | AAA90453 | CpG adjuvant oligo |
| 13 | 20 | 100.0 | 20 | 21 | AAA48598 | Immunostimulatory |
| 14 | 20 | 100.0 | 20 | 21 | AAZ99648 | Nucleotide sequenc |
| 15 | 20 | 100.0 | 20 | 21 | AAZ99173 | Inflammatory cardi |
| 16 | 20 | 100.0 | 20 | 21 | AAZ60951 | Nucleotide sequenc |
| 17 | 20 | 100.0 | 20 | 21 | AAZ48858 | B-cell stimulating |
| 18 | 20 | 100.0 | 20 | 21 | AAZ47621 | Parasitic infectio |
| 19 | 20 | 100.0 | 20 | 21 | AAZ47826 | Immunostimulatory |
| 20 | 20 | 100.0 | 20 | 21 | AAZ47955 | Immune remodeling |
| 21 | 20 | 100.0 | 20 | 22 | AAH43344 | Immunomodulatory p |
| 22 | 20 | 100.0 | 20 | 22 | AAH75852 | Thiophosphate subs |
| 23 | 20 | 100.0 | 20 | 22 | AAH43897 | Human hsp60 relate |
| 24 | 20 | 100.0 | 20 | 22 | AAH50577 | Mouse B cell stimu |
| 25 | 20 | 100.0 | 20 | 22 | AAH20398 | CpG motif containi |
| 26 | 20 | 100.0 | 20 | 22 | AAH20438 | CpG motif containi |
| 27 | 20 | 100.0 | 20 | 22 | AAH23751 | Synthetic oligonuc |
| 28 | 20 | 100.0 | 20 | 22 | AAF98806 | CpG immunostimulat |
| 29 | 20 | 100.0 | 20 | 22 | AAF99558 | Immunostimulatory |
| 30 | 20 | 100.0 | 20 | 22 | AAF99604 | Immunostimulatory |
| 31 | 20 | 100.0 | 20 | 22 | AAF99660 | Immunostimulatory |
| 32 | 20 | 100.0 | 20 | 22 | AAD02985 | Immunomodulatory a |
| 33 | 20 | 100.0 | 20 | 22 | AAA92365 | CG motif and CFA c |
| 34 | 20 | 100.0 | 20 | 22 | AAH19257 | Phosphorothioate C |
| 35 | 20 | 100.0 | 20 | 22 | AAH19285 | CpG Oligonucleotid |
| 36 | 20 | 100.0 | 20 | 22 | AAH19294 | CpG Oligonucleotid |
| 37 | 20 | 100.0 | 20 | 22 | AAH19304 | CpG oligonucleotid |
| 38 | 20 | 100.0 | 20 | 24 | AAL39209 | Murine Toll-like r |
| 39 | 20 | 100.0 | 20 | 24 | AAL39298 | Murine Toll-like r |
| 40 | 20 | 100.0 | 20 | 24 | AAL43438 | Immunostimulatory |
| 41 | 20 | 100.0 | 20 | 24 | ABK85992 | Dendritic cell sti |
| 42 | 20 | 100.0 | 20 | 24 | ABN88306 | Immunostimulatory |
| 43 | 20 | 100.0 | 20 | 24 | ABK10586 | Thiophosphate subs |
| 44 | 20 | 100.0 | 20 | 24 | ABL41286 | Synthetic CpG targ |
| 45 | 20 | 100.0 | 20 | 24 | ABL35120 | Immunostimulatory |

ALIGNMENTS

RESULT 1
AAT88792
ID AAT88792 standard; DNA; 20 BP.
XX
AC AAT88792;
XX
DT 24-APR-1998 (first entry)
XX
DE Synthetic phosphorothioate oligonucleotide used as an adjuvant.
XX
KW Parvovirus; feline; canine; T cell epitope; VP1; VP2; vaccine;
KW immunogen; phosphorothioate; cat; dog; mink; adjuvant; ss.
XX
OS Synthetic.
XX
PN WO9740163-A1.
XX
PD 30-OCT-1997.
XX
PF 18-APR-1997; 97WO-EP01943.
XX
PR 19-APR-1996; 96EP-0106217.
XX
PA (COLP/) COLPAN M.
XX
PI Baker HJ, Colpan M, Schorr J, Smith BF;
XX
DR WPI; 1997-535847/49.
XX
PT Vaccine containing nucleic acid expressing parvoviral epitope -
PT particularly both B and T cell epitope(s), for immunisation of cats,
PT dogs and mink against parvoviruses, also as a carrier for other

PT antigens
XX
PS Claim 17; Page 23; 30pp; English.
XX
CC This is a synthetic phosphorothioate oligonucleotide used as an adjuvant
CC in an anti-parvovirus vaccine. This adjuvant is particularly a DNA,
CC containing unmethylated CpG motifs i.e. ISO. The ISO contains
CC phosphorothioate linkages and is a also a powerful immune activator. The
CC anti-parvovirus vaccine contains nucleic acid encoding at least one
CC parvovirus-specific VP1 or VP2 T/B cell antigenic epitope plus a carrier.
CC The anti-parvovirus vaccine are especially used to protect cats, dogs and
CC mink, e.g. against feline panleukopaenia virus, mink enteritis virus or
CC gastroenteritis caused by canine parvovirus (CPV). The vaccine may also
CC be used to deliver other immunogens, e.g. (human) hepatitis B surface
CC antigen. Immunisation with naked DNA provides good protection against
CC parvovirus after only one injection. Both humoral and cellular responses
CC may be induced.
XX
SQ Sequence 20 BP; 3 A; 6 C; 4 G; 7 T; 0 other;

Query Match 100.0%; Score 20; DB 18; Length 20;
Best Local Similarity 100.0%; Pred. No. 1.9;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 TCCATGACGTTCCTGATGCT 20
||||||||||||||||||||
Db 1 TCCATGACGTTCCTGATGCT 20

RESULT 2
AAV45995
ID AAV45995 standard; DNA; 20 BP.
XX
AC AAV45995;
XX
DT 16-OCT-1998 (first entry)
XX
DE Immune adjuvant CpG (1668).
XX
KW Immune system; adjuvant; vaccine; cancer; prophylactic; pathogenicity;
KW modulator; tolerance; regulator; helper cell; antigen; immunoglobulin;
KW Ig class; autoimmune response; T-cell; B-cell; tumour; ss.
XX
OS Class Bacteria.
XX
PN EP855184-A1.
XX
PD 29-JUL-1998.
XX
PF 23-JAN-1997; 97EP-0101019.
XX
PR 23-JAN-1997; 97EP-0101019.
XX
PA (HEEG/) HEEG K.
PA (LIPF/) LIPFORD G B.
PA (WAGN/) WAGNER H.
XX
PI Heeg K, Lipford GB, Wagner H;
XX
DR WPI; 1998-389630/34.
XX
PT Antigenic composition comprises polynucleotide fragment and antigen
PT - used as vaccine to treat or prevent e.g. cancer or pathogen
PT infections and to modulate immune response e.g. tolerance break and
PT regulation of TH1/TH2 cells
XX
PS Example 1; Page 6; 28pp; English.
XX
CC AAV45993-V46019 are fragments of bacterial polynucleotides which are
CC used as immune adjuvants for inclusion into vaccines to treat cancer and
CC for prophylaxis and/or treatment of conditions caused by pathogenic
CC micro-organisms. The polynucleotide is used for modulation of an immune
CC response and the modulation is selected from the group break of
CC tolerance, regulation of TH1/TH2 helper cell responses, switch of Ig
CC classes, treatment of autoimmune responses and induction of tolerances.
CC DNA oligomers are used to enhance the reactivity of immune cells to
CC viral, bacterial and parasitic antigens, to break tolerance in anergic T
CC and B cells e.g. against tumour antigens, as adjuvants in vaccination
CC against tumour-defined antigens and immunostimulatory substances in an
CC immune response against tumours and to suppress immune reactions of the
CC innate and acquired immune system. The composition is inexpensive and
CC stable and does not cause lethal shock, which happens with prior art
CC bacterial sequences.
XX
SQ Sequence 20 BP; 3 A; 6 C; 4 G; 7 T; 0 other;

Query Match 100.0%; Score 20; DB 19; Length 20;
Best Local Similarity 100.0%; Pred. No. 1.9;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 TCCATGACGTTCCTGATGCT 20
||||||||||||||||||||
Db 1 TCCATGACGTTCCTGATGCT 20

RESULT 3
AAV45996
ID AAV45996 standard; DNA; 20 BP.
XX
AC AAV45996;
XX
DT 16-OCT-1998 (first entry)
XX
DE Immune adjuvant CpG (1668).
XX
KW Immune system; adjuvant; vaccine; cancer; prophylactic; pathogenicity;
KW modulator; tolerance; regulator; helper cell; antigen; immunoglobulin;
KW Ig class; autoimmune response; T-cell; B-cell; tumour; ss.
XX
OS Class Bacteria.
XX
PN EP855184-A1.
XX
PD 29-JUL-1998.
XX
PF 23-JAN-1997; 97EP-0101019.
XX
PR 23-JAN-1997; 97EP-0101019.
XX
PA (HEEG/) HEEG K.
PA (LIPF/) LIPFORD G B.
PA (WAGN/) WAGNER H.
XX
PI Heeg K, Lipford GB, Wagner H;
XX
DR WPI; 1998-389630/34.
XX
PT Antigenic composition comprises polynucleotide fragment and antigen
PT - used as vaccine to treat or prevent e.g. cancer or pathogen
PT infections and to modulate immune response e.g. tolerance break and
PT regulation of TH1/TH2 cells
XX
PS Example 3; Page 7; 28pp; English.
XX
CC AAV45993-V46019 are fragments of bacterial polynucleotides which are
CC used as immune adjuvants for inclusion into vaccines to treat cancer and
CC for prophylaxis and/or treatment of conditions caused by pathogenic
CC micro-organisms. The polynucleotide is used for modulation of an immune
CC response and the modulation is selected from the group break of
CC tolerance, regulation of TH1/TH2 helper cell responses, switch of Ig
CC classes, treatment of autoimmune responses and induction of tolerances.
CC DNA oligomers are used to enhance the reactivity of immune cells to
CC viral, bacterial and parasitic antigens, to break tolerance in anergic T
CC and B cells e.g. against tumour antigens, as adjuvants in vaccination
CC against tumour-defined antigens and immunostimulatory substances in an
CC immune response against tumours and to suppress immune reactions of the

```
CC   innate and acquired immune system. The composition is inexpensive and
CC   stable and does not cause lethal shock, which happens with prior art
CC   bacterial sequences.
XX
SQ   Sequence 20 BP; 3 A; 6 C; 4 G; 7 T; 0 other;

  Query Match             100.0%;  Score 20;  DB 19;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 1.9;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGACGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATGACGTTCCTGATGCT 20


RESULT 4
AAV27708
ID   AAV27708 standard; DNA; 20 BP.
XX
AC   AAV27708;
XX
DT   01-OCT-1998  (first entry)
XX
DE   Immunostimulatory oligodeoxyribonucleotide of the invention.
XX
KW   Immunostimulatory; oligodeoxyribonucleotide; ODN;
KW   unmethylated CpG dinucleotide; activate; lymphocyte; immune response;
KW   Th2; Th1; cytokine; treatment; prevention; asthma; autoimmune disease;
KW   desensitisation therapy; artificial adjuvant; antibody generation; ss.
XX
OS   Synthetic.
XX
PN   WO9818810-A1.
XX
PD   07-MAY-1998.
XX
PF   30-OCT-1997;   97WO-US19791.
XX
PR   30-OCT-1996;   96US-0738652.
XX
PA   (IOWA ) UNIV IOWA RES FOUND.
XX
PI   Kline JN,  Krieg AM;
XX
DR   WPI; 1998-272127/24.
XX
PT   New immunostimulatory nucleic acid molecules - which contain at
PT   least one unmethylated CpG dinucleotide, used for treating e.g.
PT   tumours, infections or autoimmune disease
XX
PS   Disclosure; Page 28; 109pp; English.
XX
CC   AAV27641-751 represent immunostimulatory oligodeoxyribonucleotides
CC   (ODNs) of the invention. The ODNs contain at least one unmethylated CpG
CC   dinucleotide, and have the formula:
CC   5' N1X1CGX2N2 3', where at least one nucleotide separates consecutive
CC   CpGs, X1 is adenine, guanine, or thymine, X2 is cytosine or thymine, N
CC   is any nucleotide and N1+N2 is 0-26 bases with the provision that N1 and
CC   N2 does not contain a CCGG tetramer or more than one CCG or CGG trimer
CC   OR 5' NX1X2CGX3X4N 3', where at least one nucleotide separates
CC   consecutive CpGs, X1 and X2 are selected from GpT, GpG, GpA, ApT and ApA,
CC   X3and X4 are selected from TpT or CpT, N is any nucleotide and N1+N2 is
CC   0-26 bases with the provision that N1 and N2 does not contain a CCGG
CC   tetramer or more than one CCG or CGG trimer.
CC   The ODNs activate lymphocytes in a subject and redirect a subject's
CC   immune response from a Th2 to a Th1 (e.g. by inducing monocytic cells
CC   and other cells to produce Th1 cytokines, including IL-12, IFN-gamma and
CC   GM-CSF). The ODNs can be used to treat or prevent an asthmatic disorder,
CC   autoimmune diseases, in desensitisation therapy, as an artificial
CC   adjuvant during antibody generation in a mammal such as a mouse or a
CC   human.
XX
SQ   Sequence 20 BP; 3 A; 6 C; 4 G; 7 T; 0 other;

  Query Match             100.0%;  Score 20;  DB 19;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 1.9;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGACGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATGACGTTCCTGATGCT 20


RESULT 5
AAV27700
ID   AAV27700 standard; DNA; 20 BP.
XX
AC   AAV27700;
XX
DT   01-OCT-1998  (first entry)
XX
DE   Immunostimulatory oligodeoxyribonucleotide 3Md.
XX
KW   Immunostimulatory; oligodeoxyribonucleotide; ODN;
KW   unmethylated CpG dinucleotide; activate; lymphocyte; immune response;
KW   Th2; Th1; cytokine; treatment; prevention; asthma; autoimmune disease;
KW   desensitisation therapy; artificial adjuvant; antibody generation; ss.
XX
OS   Synthetic.
XX
PN   WO9818810-A1.
XX
PD   07-MAY-1998.
XX
PF   30-OCT-1997;   97WO-US19791.
XX
PR   30-OCT-1996;   96US-0738652.
XX
PA   (IOWA ) UNIV IOWA RES FOUND.
XX
PI   Kline JN,  Krieg AM;
XX
DR   WPI; 1998-272127/24.
XX
PT   New immunostimulatory nucleic acid molecules - which contain at
PT   least one unmethylated CpG dinucleotide, used for treating e.g.
PT   tumours, infections or autoimmune disease
XX
PS   Disclosure; Page 27; 109pp; English.
XX
CC   AAV27641-751 represent immunostimulatory oligodeoxyribonucleotides
CC   (ODNs) of the invention. The ODNs contain at least one unmethylated CpG
CC   dinucleotide, and have the formula:
CC   5' N1X1CGX2N2 3', where at least one nucleotide separates consecutive
CC   CpGs, X1 is adenine, guanine, or thymine, X2 is cytosine or thymine, N
CC   is any nucleotide and N1+N2 is 0-26 bases with the provision that N1 and
CC   N2 does not contain a CCGG tetramer or more than one CCG or CGG trimer
CC   OR 5' NX1X2CGX3X4N 3', where at least one nucleotide separates
CC   consecutive CpGs, X1 and X2 are selected from GpT, GpG, GpA, ApT and ApA,
CC   X3and X4 are selected from TpT or CpT, N is any nucleotide and N1+N2 is
CC   0-26 bases with the provision that N1 and N2 does not contain a CCGG
CC   tetramer or more than one CCG or CGG trimer.
CC   The ODNs activate lymphocytes in a subject and redirect a subject's
CC   immune response from a Th2 to a Th1 (e.g. by inducing monocytic cells
CC   and other cells to produce Th1 cytokines, including IL-12, IFN-gamma and
CC   GM-CSF). The ODNs can be used to treat or prevent an asthmatic disorder,
CC   autoimmune diseases, in desensitisation therapy, as an artificial
CC   adjuvant during antibody generation in a mammal such as a mouse or a
CC   human.
XX
SQ   Sequence 20 BP; 3 A; 6 C; 4 G; 7 T; 0 other;

  Query Match             100.0%;  Score 20;  DB 19;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 1.9;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;
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```
Qy      1 TCCATGACGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATGACGTTCCTGATGCT 20
```

```
RESULT 6
AAV27651
ID   AAV27651 standard; DNA; 20 BP.
XX
AC   AAV27651;
XX
DT   01-OCT-1998  (first entry)
XX
DE   Immunostimulatory oligodeoxyribonucleotide of the invention.
XX
KW   Immunostimulatory; oligodeoxyribonucleotide; ODN;
KW   unmethylated CpG dinucleotide; activate; lymphocyte; immune response;
KW   Th2; Th1; cytokine; treatment; prevention; asthma; autoimmune disease;
KW   desensitisation therapy; artificial adjuvant; antibody generation; ss.
XX
OS   Synthetic.
XX
PN   WO9818810-A1.
XX
PD   07-MAY-1998.
XX
PF   30-OCT-1997;   97WO-US19791.
XX
PR   30-OCT-1996;   96US-0738652.
XX
PA   (IOWA ) UNIV IOWA RES FOUND.
XX
PI   Kline JN,  Krieg AM;
XX
DR   WPI; 1998-272127/24.
XX
PT   New immunostimulatory nucleic acid molecules - which contain at
PT   least one unmethylated CpG dinucleotide, used for treating e.g.
PT   tumours, infections or autoimmune disease
XX
PS   Claim 26; Page 83; 109pp; English.
XX
CC   AAV27641-751 represent immunostimulatory oligodeoxyribonucleotides
CC   (ODNs) of the invention. The ODNs contain at least one unmethylated CpG
CC   dinucleotide, and have the formula:
CC   5' N1X1CGX2N2 3', where at least one nucleotide separates consecutive
CC   CpGs, X1 is adenine, guanine, or thymine, X2 is cytosine or thymine, N
CC   is any nucleotide and N1+N2 is 0-26 bases with the provision that N1 and
CC   N2 does not contain a CCGG tetramer or more than one CCG or CGG trimer
CC   OR 5' NX1X2CGX3X4N 3', where at least one nucleotide separates
CC   consecutive CpGs, X1 and X2 are selected from GpT, GpG, GpA, ApT and ApA,
CC   X3and X4 are selected from TpT or CpT, N is any nucleotide and N1+N2 is
CC   0-26 bases with the provision that N1 and N2 does not contain a CCGG
CC   tetramer or more than one CCG or CGG trimer.
CC   The ODNs activate lymphocytes in a subject and redirect a subject's
CC   immune response from a Th2 to a Th1 (e.g. by inducing monocytic cells
CC   and other cells to produce Th1 cytokines, including IL-12, IFN-gamma and
CC   GM-CSF). The ODNs can be used to treat or prevent an asthmatic disorder,
CC   autoimmune diseases, in desensitisation therapy, as an artificial
CC   adjuvant during antibody generation in a mammal such as a mouse or a
CC   human.
XX
SQ   Sequence 20 BP; 3 A; 6 C; 4 G; 7 T; 0 other;
```

```
  Query Match             100.0%;  Score 20;  DB 19;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 1.9;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGACGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATGACGTTCCTGATGCT 20
```

```
RESULT 7
AAZ41879
ID   AAZ41879 standard; DNA; 20 BP.
XX
AC   AAZ41879;
XX
DT   24-JAN-2000  (first entry)
XX
DE   IL-12 secretion inducing CpG oligonucleotide 24.
XX
KW   CpG oligonucleotide; phosphorothioate; interleukin-12; IL-12; secretion;
KW   human PBMC; immune response; cancer; HIV; bacterial disease; asthma;
KW   neoplastic disorder; jaagsiekte; B cell; NK cell; ss; cytokine;
KW   antigen presenting cell; infection; allergic disease.
XX
OS   Synthetic.
XX
PN   WO9951259-A2.
XX
PD   14-OCT-1999.
XX
PF   02-APR-1999;   99WO-US07335.
XX
PR   03-APR-1998;   98US-0080729.
XX
PA   (IOWA ) UNIV IOWA RES FOUND.
XX
PI   Krieg AM,  Weiner G;
XX
DR   WPI; 1999-620169/53.
XX
PT   Novel synergistic combinations of immunostimulatory oligonucleotides
PT   and immunopotentiating cytokines are useful for stimulating the immune
PT   system -
XX
PS   Example 8; Page 72; 91pp; English.
XX
CC   Sequences AAZ41856-Z41949 are phosphorothioate CpG oligonucleotides
CC   which are used in the invention to induce interleukin-12 (IL-12)
CC   secretion from human PBMC. The invention comprises stimulating an immune
CC   response in a subject comprising administering to a subject exposed to an
CC   antigen, an immunopotentiating cytokine and an immunostimulatory CpG
CC   oligonucleotide to induce a synergistic antigen specific immune
CC   response. The methods are useful for treating cancer by stimulating an
CC   antigen specific immune response against a cancer antigen. The methods
CC   can also be used to treat neoplastic disorders in humans, including but
CC   not limited to: sarcoma, carcinoma, fibroma, Lymphoma, melanoma,
CC   neuroblastoma, retinoblastoma, and glioma. The methods are also useful
CC   for treating infectious diseases, e.g. viral diseases such as HIV,
CC   bacterial diseases, and fungal diseases. The methods may also be used to
CC   treat allergic diseases, e.g. asthma. The methods and compositions may
CC   also be applied to treat cancer and tumours in non human subjects,
CC   e.g. cats and dogs. Neoplasias affecting agricultural livestock may also
CC   be treated and include leukaemia, haemangiopericytoma and bovine ocular
CC   neoplasia. Chronic, infectious, contagious diseases of sheep and goats
CC   caused by the bacterium Corynebacterium pseudotuberculosis, and
CC   contagious lung tumour of sheep caused by jaagsiekte may also be
CC   treated. CpG oligonucleotides can be useful in activating B cells, NK
CC   cells, and antigen presenting cells, such as monocytes and macrophages.
CC   CpG oligonucleotides enhance antibody dependent cellular cytotoxicity and
CC   can be used as an adjuvant in conjunction with tumour antigens to
CC   protect against a tumour challenge.
XX
SQ   Sequence 20 BP; 3 A; 6 C; 4 G; 7 T; 0 other;
```

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  Query Match             100.0%;  Score 20;  DB 20;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 1.9;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGACGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATGACGTTCCTGATGCT 20
```

```
RESULT 8
AAZ28190
ID   AAZ28190 standard; DNA; 20 BP.
XX
AC   AAZ28190;
XX
DT   20-DEC-1999  (first entry)
XX
DE   Chlamydia trachomatis outer membrane protein gene-derived CpG oligo 3.
XX
KW   Heart disease; inflammatory; autoimmune; cardiomyopathy; adjuvant;
KW   CpG motif; vaccine; ds.
XX
OS   Synthetic.
OS   Chlamydia trachomatis.
XX
FH   Key             Location/Qualifiers
FT   modified_base   1..20
FT                   /*tag=  a
FT                   /mod_base= OTHER
FT                   /note= "OTHER = phosphorothioate linkage"
XX
PN   US5962636-A.
XX
PD   05-OCT-1999.
XX
PF   12-AUG-1998;   98US-0133774.
XX
PR   12-AUG-1998;   98US-0133774.
XX
PA   (AMGE-) AMGEN CANADA INC.
XX
PI   Bachmaier K,  Hessel AJ,  Penninger JM,  Neu N;
XX
DR   WPI; 1999-589735/50.
XX
PT   Peptides that induce or suppress inflammatory cardiomyopathy  -
XX
PS   Example 2; Column 25; 17pp; English.
XX
CC   This sequence represents DNA encoding Chlamydia trachomatis 60 kD outer
CC   membrane protein (OMP) gene-derived CpG oligonucleotide 3. This
CC   oligonucleotide contains a CpG motif. It was tested for its ability to
CC   act as an adjuvant for the M7A-alpha peptide (AAY42723), which can
CC   induce inflammatory cardiomyopathy (ICM) in mice. It was found to act as
CC   a potent immunostimulator, whereas a oligonucleotide from the same
CC   source which did not contain a CpG motif (AAZ28193) was hardly effective
CC   as an adjuvant. Inflammatory cardiomyopathy peptides (AAY42723,
CC   AAY42725-Y42731) can be used with such an adjuvant and an excipient in a
CC   vaccine for decreasing ICM.
XX
SQ   Sequence 20 BP; 3 A; 6 C; 4 G; 7 T; 0 other;

  Query Match             100.0%;  Score 20;  DB 20;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 1.9;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       1 TCCATGACGTTCCTGATGCT 20
           ||||||||||||||||||||
Db       1 TCCATGACGTTCCTGATGCT 20


RESULT 9
AAV72500
ID   AAV72500 standard; DNA; 20 BP.
XX
AC   AAV72500;
XX
DT   05-AUG-1999  (first entry)
XX
DE   CpG motif containing oligonucleotide 1.
XX
KW   CpG motif; immunogenicity; antigen; transdermal delivery technique;
KW   adjuvant; immune response; vaccine; primer; ss.
XX
OS   Synthetic.
XX
PN   WO9927961-A1.
XX
PD   10-JUN-1999.
XX
PF   02-DEC-1998;   98WO-US25563.
XX
PR   22-APR-1998;   98US-0082686.
PR   02-DEC-1997;   97US-0067146.
XX
PA   (POWD-) POWDERJECT VACCINES INC.
XX
PI   Chen D,  Drape RJ,  Sarphie D,  Swain WF,  Widera GJ;
XX
DR   WPI; 1999-358015/30.
XX
PT   New transdermal delivery of vaccine compositions
XX
PS   Claim 22; Page 23; 95pp; English.
XX
CC   This invention describes a novel method for enhancing the immunogenicity
CC   of a selected antigen by delivering an adjuvant into or across skin or
CC   tissue of the vertebrate subject using a transdermal delivery technique.
CC   The vaccine compositions of the invention are used particularly for
CC   eliciting an immune response to antigens, e.g. viral or bacterial
CC   antigens. The crystalline compositions have sufficient particle
CC   structure, rigidity and/or density characteristics which render them
CC   suitable for delivery into and/or through skin or mucosal tissue using a
CC   needleless syringe system. By administering the compositions
CC   transdermally, it is possible to achieve a stronger immune response than
CC   by conventional intramuscular injection. Transdermal administration of
CC   particulate compositions to skin or mucosal tissue also improves the
CC   safety and efficacy of commonly used immunomodulators such as adjuvants.
XX
SQ   Sequence 20 BP; 3 A; 6 C; 4 G; 7 T; 0 other;

  Query Match             100.0%;  Score 20;  DB 20;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 1.9;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       1 TCCATGACGTTCCTGATGCT 20
           ||||||||||||||||||||
Db       1 TCCATGACGTTCCTGATGCT 20


RESULT 10
AAC60281
ID   AAC60281 standard; DNA; 20 BP.
XX
AC   AAC60281;
XX
DT   14-FEB-2001  (first entry)
XX
DE   Immunostimulatory oligonucleotide #5.
XX
KW   Immunostimulatory; oligonucleotide; cancer; allergy;
KW   Alzheimer's disease; atherosclerosis; viral; bacterial; parasitic;
KW   infection; ss.
XX
OS   Homo sapiens.
XX
PN   WO200062800-A2.
XX
PD   26-OCT-2000.
XX
PF   04-APR-2000; 2000WO-EP02920.
XX
PR   19-APR-1999;   99GB-0008885.
PR   29-APR-1999;   99US-0301829.
```

XX
PA (SMIK ) SMITHKLINE BEECHAM BIOLOGICALS.
XX
PI Friede M, Garcon N, Hermand P;
XX
DR WPI; 2000-687101/67.
XX
PT Adjuvant composition comprising saponin and immunostimulatory
PT oligonucleotide CpG, useful for producing vaccine formulations for
PT prophylaxis and treatment of cancers, allergy and Alzheimer's disease
PT -
XX
PS Claim 5; Page 5; 52pp; English.
XX
CC The present invention relates to an adjuvant composition comprising a
CC saponin and an immunostimulatory oligonucleotide. A vaccine
CC composition containing the adjuvant is useful for inducing an immune
CC response in an individual and for preventing or treating disease.
CC Diseases include cancers; allergy; Alzheimer's disease and
CC atherosclerosis. The vaccine is also useful for prophylaxis and
CC treatment of viral, bacterial and parasitic infections. The present
CC sequence is an oligonucleotide of the invention.
XX
SQ Sequence 20 BP; 3 A; 6 C; 4 G; 7 T; 0 other;

Query Match 100.0%; Score 20; DB 21; Length 20;
Best Local Similarity 100.0%; Pred. No. 1.9;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 TCCATGACGTTCCTGATGCT 20
||||||||||||||||||||
Db 1 TCCATGACGTTCCTGATGCT 20

RESULT 11
AAA71935
ID AAA71935 standard; DNA; 20 BP.
XX
AC AAA71935;
XX
DT 12-JAN-2001 (first entry)
XX
DE Murine Th1 cells immunostimulatory primer CpG-ODN 1668.
XX
KW Murine; Th1 cell; tumor-reactive helper T cell; interferon gamma;
KW cytostatic; immunostimulation; treatment; tumor; lymphoma; primer; ss.
XX
OS Mus sp.
XX
PN DE19906744-A1.
XX
PD 24-AUG-2000.
XX
PF 18-FEB-1999; 99DE-1006744.
XX
PR 18-FEB-1999; 99DE-1006744.
XX
PA (ROEC/) ROECKEN M.
PA (EGET/) EGETER O.
PA (GSFU-) GSF FORSCHUNGSZENTRUM UMWELT & GESUNDHEI.
XX
PI Roecken M, Egeter O, Mocikat R;
XX
DR WPI; 2000-566166/53.
XX
PT Pharmaceutical composition useful for tumor therapy comprises
PT tumor-reactive helper T cells that produce high levels of interferon
PT gamma and little or no interleukin-4 -
XX
PS Disclosure; Page 3; 10pp; German.
XX
CC This invention describes a novel pharmaceutical composition comprising
CC tumor-reactive helper T cells which produce high levels of interferon
CC gamma and little or no interleukin-4, and excipients and additives. The
CC product of the invention have cytostatic activity. Cell line Th1 was
CC produced by culturing helper T cells in the presence of irradiated murine
CC A20 tumor cells (ATCC TIB-208), irradiated antigen-presenting cells
CC (produced by treating BALB/c spleen cells with anti-CD4 and anti-CD8
CC antibodies and complement), anti-interleukin-4 antibody, an
CC immunostimulatory oligonucleotide (CpG-ODN 1668) and interleukin-2.
CC Balb/c mice injected intraperitoneally with 0.5 x 10^6 A20 cells and
CC 0.5 x 10^6 Th1 cells exhibited over 75 % survival after 100 days,
CC compared with 0 % for mice injected with A20 cells alone. The composition
CC is useful for preventing and/or treating solid or hematopoietic tumors,
CC e.g. lymphomas, preferably by adoptive transfer. This sequence rerpesents
CC a primer used in the method of the invention.
XX
SQ Sequence 20 BP; 3 A; 6 C; 4 G; 7 T; 0 other;

Query Match 100.0%; Score 20; DB 21; Length 20;
Best Local Similarity 100.0%; Pred. No. 1.9;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 TCCATGACGTTCCTGATGCT 20
||||||||||||||||||||
Db 1 TCCATGACGTTCCTGATGCT 20

RESULT 12
AAA90453
ID AAA90453 standard; DNA; 20 BP.
XX
AC AAA90453;
XX
DT 10-JAN-2001 (first entry)
XX
DE CpG adjuvant oligonucleotide, SEQ ID NO:7.
XX
KW CpG oligonucleotide; CpG motif; adjuvant; microdroplet emulsion;
KW microemulsion; adsorbent microparticle; vaccine; Th1 immune response;
KW viral infection; bacterial infection; parasitic infection; HCV; HBV;
KW hepatitis C virus; hepatitis B virus; herpes simplex virus; HSV; HIV;
KW human immunodeficiency virus; cytomegalovirus; CMV; influenza virus;
KW rabies virus; cholera; diphtheria; tetanus; pertussis;
KW Helicobacter pylori; Haemophilus influenzae; malaria; ss.
XX
OS Synthetic.
XX
PN WO200050006-A2.
XX
PD 31-AUG-2000.
XX
PF 09-FEB-2000; 2000WO-US03331.
XX
PR 26-FEB-1999; 99US-0121858.
PR 29-JUL-1999; 99US-0146391.
PR 28-OCT-1999; 99US-0161997.
XX
PA (CHIR ) CHIRON CORP.
XX
PI O'Hagan D, Ott GS, Donnelly J, Kazzaz J, Ugozzoli M, Singh M;
PI Barackman J;
XX
DR WPI; 2000-587123/55.
XX
PT Microemulsion having an adsorbent surface comprising a microdroplet
PT emulsion consisting of a metabolizable oil and an emulsifying agent
PT which is a detergent, useful as a vaccine to treat bacterial, viral,
PT and parasitic infection -
XX
PS Claim 17; Page 40; 95pp; English.
XX
CC The invention relates to a microdroplet emulsion (microemulsion) with an
CC adsorbent surface, and which comprises a metabolisable oil and an
CC emulsifying agent (a detergent). It also relates to a composition
CC comprising the microemulsion and a microparticle with an adsorbent

CC surface, where the microparticle comprises a polymer selected from a
CC poly(alpha-hydroxy acid), a polyhydroxy butyric acid, a
CC polycaprolactone, a polyorthoester, a polyanhydride, and a
CC polycyanoacrylate, and a second detergent. The surface of the
CC microparticles efficiently adsorb biologically active macromolecules such
CC as DNA, polypeptides, antigens, hormones, pharmaceuticals, enzymes,
CC mediators of transcription or translation, metabolic intermediates and
CC adjuvants. Additionally, a second biologically active molecule may be
CC encapsulated within the microparticle. The microemulsion can be used in
CC methods of immunising a host animal, particularly a human, against a
CC viral, bacterial or parasitic infection, and in methods of increasing a
CC Th1 immune response. The microemulsions (having the appropriate antigens
CC adsorbed) may be particularly used as vaccines for hepatitis C virus
CC (HCV), hepatitis B virus (HBV), herpes simplex virus (HSV), human
CC immunodeficiency virus (HIV), cytomegalovirus (CMV), influenza virus, and
CC rabies virus; the bacteria which cause cholera, diphtheria, tetanus and
CC pertussis; Helicobacter pylori and Haemophilus influenzae; and
CC malaria-causing parasites. Sequences AAA90447-A90467 represent Th1
CC lymphocyte stimulating oligonucleotides containing at least one CpG motif
CC which are claimed for use as adjuvants in the compositions of the
CC invention.
XX
SQ Sequence 20 BP; 3 A; 6 C; 4 G; 7 T; 0 other;

Query Match 100.0%; Score 20; DB 21; Length 20;
Best Local Similarity 100.0%; Pred. No. 1.9;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 TCCATGACGTTCCTGATGCT 20
||||||||||||||||||||
Db 1 TCCATGACGTTCCTGATGCT 20

RESULT 13
AAA48598
ID AAA48598 standard; DNA; 20 BP.
XX
AC AAA48598;
XX
DT 20-SEP-2000 (first entry)
XX
DE Immunostimulatory oligonucleotide 1668.
XX
KW Replication protein A; immunostimulatory DNA; vaccine adjuvant;
KW immunotherapy; cancer; allergic disease; inflammatory disease;
KW inflammatory autoimmune disease; systemic lupus erythematosus;
KW arthritis; psoriasis; gingivitis; sarcoidosis; multiple sclerosis;
KW colitis; ileitis; ss.
XX
OS Synthetic.
XX
PN WO200031540-A1.
XX
PD 02-JUN-2000.
XX
PF 25-NOV-1999; 99WO-AU01052.
XX
PR 25-NOV-1998; 98AU-0007288.
XX
PA (UYQU ) UNIV QUEENSLAND.
XX
PI Stacey KJ, Sester DP, Sweet MJ, Hume DA;
XX
DR WPI; 2000-400189/34.
XX
PT Detecting immunostimulatory DNA comprising contacting with replication
PT protein A (RPA) and detecting complex formation -
XX
PS Example 1; Page 28; 101pp; English.
XX
CC Replication protein A (RPA) is involved in a novel method for detecting
CC immunostimulatory DNA. The method involves combining a sample of DNA
CC with RPA and detecting complex formation. This method can be used to
CC identify agonists and antagonists of immunostimulatory DNA. Agonists or
CC antagonists may be used as vaccine adjuvants and for, immunotherapy for
CC cancer, allergic diseases, inflammatory diseases and inflammatory
CC autoimmune diseases (eg. systemic lupus erythematosus, arthritis,
CC psoriasis, gingivitis, sarcoidosis, multiple sclerosis, colitis and
CC ileitis). The present sequence is the immunostimulatory oligonucleotide
CC 1668. This was used in the development of the novel method.
XX
SQ Sequence 20 BP; 3 A; 6 C; 4 G; 7 T; 0 other;

Query Match 100.0%; Score 20; DB 21; Length 20;
Best Local Similarity 100.0%; Pred. No. 1.9;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 TCCATGACGTTCCTGATGCT 20
||||||||||||||||||||
Db 1 TCCATGACGTTCCTGATGCT 20

RESULT 14
AAZ99648
ID AAZ99648 standard; DNA; 20 BP.
XX
AC AAZ99648;
XX
DT 12-JUL-2000 (first entry)
XX
DE Nucleotide sequence of non-G-motif oligonucleotide 1668.
XX
KW G-motif oligonucleotide; vaccine; Toxoplasmosis; viral infection;
KW antigen presenting cell activation; natural killer cell; septic shock;
KW cytotoxic T-lymphocyte; inflammation; autoimmune disease;
KW rheumatoid arthritis; Crohn's disease; sarcoidosis; multiple sclerosis;
KW Kawasaki syndrome; graft-versus-host disease; transplant rejection;
KW helper T cell response 1-mediated disease; Lyme arthritis;
KW Streptococcal induced arthritis; chronic inflammatory bowel disease;
KW psoriasis vulgaris; experimental allergic encephalomyelitis;
KW insulin-dependent diabetes mellitus; bacterial infection;
KW parasitic infection; Leishmaniasis; spontaneous abortion; tumour; ss.
XX
OS Synthetic.
XX
PN WO200014217-A2.
XX
PD 16-MAR-2000.
XX
PF 03-SEP-1999; 99WO-EP06502.
XX
PR 03-SEP-1998; 98EP-0116652.
XX
PA (CPGI-) CPG IMMUNOPHARMACEUTICALS GMBH.
XX
PI Wagner H, Lipford GB, Heeg K;
XX
DR WPI; 2000-256970/22.
XX
PT Compositions comprising G-motif oligonucleotides useful for treating
PT e.g. septic shock, rheumatoid arthritis, diabetes and human
PT immunodeficiency virus infections -
XX
PS Example 14; Page 32; 75pp; English.
XX
CC The present sequence represents a non-G-motif oligonucleotide of the
CC invention. The specification describes compositions comprising G-motif
CC oligonucleotides. The G-motif oligonucleotides inhibit activation of
CC antigen presenting cells by inhibiting the uptake of DNA by a cell, by
CC stimulating natural killer cells, or by co-stimulating cytotoxic
CC T-lymphocytes. The G-motif oligonucleotides may be used for the
CC productions of vaccines for treating septic shock, inflammation,
CC autoimmune diseases (e.g. rheumatoid arthritis, Crohn's disease,
CC sarcoidosis, multiple sclerosis, Kawasaki syndrome, graft-versus-host
CC disease and transplant rejection), helper T cell response 1-mediated
CC diseases (e.g. Streptococcal induced arthritis, Lyme arthritis, chronic

CC inflammatory bowel disease, psoriasis vulgaris, experimental allergic
CC encephalomyelitis, and insulin-dependent diabetes mellitus), bacterial
CC infections, parasitic infections (e.g. Leishmaniasis or Toxoplasmosis),
CC viral infections (e.g. Cytomegalovirus and human immunodeficiency virus
CC (HIV)-infections), spontaneous abortions and tumours. They may also be
CC used to induce proliferation of bone marrow cells, especially macrophage
CC precursor cells.
XX
SQ Sequence 20 BP; 3 A; 6 C; 4 G; 7 T; 0 other;

Query Match 100.0%; Score 20; DB 21; Length 20;
Best Local Similarity 100.0%; Pred. No. 1.9;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 TCCATGACGTTCCTGATGCT 20
||||||||||||||||||||
Db 1 TCCATGACGTTCCTGATGCT 20

RESULT 15
AAZ99173
ID AAZ99173 standard; DNA; 20 BP.
XX
AC AAZ99173;
XX
DT 21-JUN-2000 (first entry)
XX
DE Inflammatory cardiomyopathy immunostimulatory oligonucleotide #2.
XX
KW Cardiant; murine alpha myosin heavy chain; inflammatory myocarditis;
KW autoimmune inflammatory cardiomyopathy; Chlamydia; antibody; vaccine;
KW hybridization probe; immunostimulatory; ss.
XX
OS Synthetic.
XX
PN US6034230-A.
XX
PD 07-MAR-2000.
XX
PF 03-MAY-1999; 99US-0303862.
XX
PR 12-AUG-1998; 98US-0133774.
XX
PA (AMGE-) AMGEN CANADA INC.
XX
PI Neu N, Penninger JM, Bachmaier K, Hessel AJ;
XX
DR WPI; 2000-255712/22.
XX
PT DNA molecules encoding novel myocardial peptides used for inhibiting
PT and inducing inflammatory cardiomyopathy in vivo -
XX
PS Disclosure; Column 17; 17pp; English.
XX
CC The invention relates to the isolation of sequences coding for peptide
CC sequences derived from bacteria and viruses which may cause inflammatory
CC cardiomyopathy. The peptide sequences are searched based on the sequence
CC of the M7A peptides derived from the murine alpha myosin heavy chain
CC polypeptide. The consensus sequence of the murine M7A-alpha/beta peptides
CC (Y83813) was used to search the PIR public database for similar bacterial
CC and viral sequences able to cause inflammatory cardiomyopathy. The screen
CC isolated the peptides Y83814-Y83819 and their corresponding coding
CC sequences Z99164-Z99169. The peptides encoded by the DNAs are used, alone
CC or in conjunction with other therapeutics, for inducing or inhibiting
CC inflammatory cardiomyopathy in vivo, where the cardiomyopathy is
CC autoimmune inflammatory cardiomyopathy, and inflammatory cardiomyopathy
CC caused by Chlamydia or other bacterial or viral infections that cause
CC inflammatory cardiomyopathy. The oligonucleotides Z99172-Z99176 were
CC shown to increase the immunogenicity of the immunostimulatory peptides
CC when injected simultaneously. The peptides may also be used for
CC increasing inflammatory myocarditis in a mammal. Antibodies against the
CC peptides and the peptides themselves are used for measuring the risk of
CC inflammatory cardiomyopathy in a mammal. The peptides may also be used
CC in vaccines. Nucleic acids encoding the peptides may be used as
CC hybridization probes, e.g. in diagnostic assays to test for the
CC presence of Chlamydia DNA.
XX
SQ Sequence 20 BP; 3 A; 6 C; 4 G; 7 T; 0 other;

Query Match 100.0%; Score 20; DB 21; Length 20;
Best Local Similarity 100.0%; Pred. No. 1.9;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 TCCATGACGTTCCTGATGCT 20
||||||||||||||||||||
Db 1 TCCATGACGTTCCTGATGCT 20

Search completed: March 1, 2003, 21:11:28
Job time : 148.25 secs

GenCore version 5.1.4_p5_4578


OM nucleic - nucleic search, using sw model

Run on: March 1, 2003, 20:25:21 ; Search time 1108.25 Seconds
(without alignments)
292.271 Million cell updates/sec

Title: US-09-818-918-44
Perfect score: 20
Sequence: 1 tccatgacgttcctgatgct 20

Scoring table: IDENTITY_NUC
Gapop 10.0 , Gapext 1.0

Searched: 16154066 seqs, 8097743376 residues

Total number of hits satisfying chosen parameters: 32308132

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : EST:*
1: em_estba:*
2: em_esthum:*
3: em_estin:*
4: em_estmu:*
5: em_estov:*
6: em_estpl:*
7: em_estro:*
8: em_htc:*
9: gb_est1:*
10: gb_est2:*
11: gb_htc:*
12: gb_est3:*
13: gb_est4:*
14: gb_est5:*
15: em_estfun:*
16: em_estom:*
17: gb_gss:*
18: em_gss_hum:*
19: em_gss_inv:*
20: em_gss_pln:*
21: em_gss_vrt:*
22: em_gss_fun:*
23: em_gss_mam:*
24: em_gss_mus:*
25: em_gss_other:*
26: em_gss_pro:*
27: em_gss_rod:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

| | Result No. | Score | % Query Match | Length | DB | ID | Description |
|---|---|---|---|---|---|---|---|
| | 1 | 20 | 100.0 | 287 | 12 | BF713668 | BF713668 ESTPBL223 |
| c | 2 | 17.4 | 87.0 | 392 | 9 | AI077366 | AI077366 oy87e11.x |
| c | 3 | 17.4 | 87.0 | 408 | 9 | AI086210 | AI086210 ow90d05.s |
| c | 4 | 17.4 | 87.0 | 688 | 17 | AZ364551 | AZ364551 1M0110C22 |
| c | 5 | 17 | 85.0 | 546 | 10 | AW065908 | AW065908 687002G08 |
| c | 6 | 16.8 | 84.0 | 70 | 9 | AA855652 | AA855652 vw70g01.r |
| c | 7 | 16.8 | 84.0 | 97 | 9 | AA082589 | AA082589 zn23g09.r |
| c | 8 | 16.8 | 84.0 | 203 | 10 | BB600029 | BB600029 BB600029 |
| c | 9 | 16.8 | 84.0 | 216 | 10 | BB590993 | BB590993 BB590993 |
| c | 10 | 16.8 | 84.0 | 227 | 10 | BB597403 | BB597403 BB597403 |
| c | 11 | 16.8 | 84.0 | 242 | 10 | BB604665 | BB604665 BB604665 |
| c | 12 | 16.8 | 84.0 | 243 | 10 | BB599612 | BB599612 BB599612 |
| c | 13 | 16.8 | 84.0 | 245 | 10 | BB603788 | BB603788 BB603788 |
| c | 14 | 16.8 | 84.0 | 266 | 10 | BB596258 | BB596258 BB596258 |
| c | 15 | 16.8 | 84.0 | 271 | 10 | BB570188 | BB570188 BB570188 |
| c | 16 | 16.8 | 84.0 | 272 | 12 | BF913557 | BF913557 MR3-UT012 |
| c | 17 | 16.8 | 84.0 | 275 | 10 | BB585846 | BB585846 BB585846 |
| c | 18 | 16.8 | 84.0 | 276 | 10 | BB569248 | BB569248 BB569248 |
| c | 19 | 16.8 | 84.0 | 277 | 10 | BB601536 | BB601536 BB601536 |
| c | 20 | 16.8 | 84.0 | 296 | 10 | BB601186 | BB601186 BB601186 |
| c | 21 | 16.8 | 84.0 | 309 | 10 | BB585810 | BB585810 BB585810 |
| c | 22 | 16.8 | 84.0 | 350 | 10 | BB856049 | BB856049 BB856049 |
| c | 23 | 16.8 | 84.0 | 357 | 9 | AI100912 | AI100912 EST210201 |
| | 24 | 16.8 | 84.0 | 393 | 12 | BF542960 | BF542960 UI-R-Y0-a |
| c | 25 | 16.8 | 84.0 | 417 | 9 | AI716523 | AI716523 UI-R-Y0-a |
| c | 26 | 16.8 | 84.0 | 424 | 10 | BB664352 | BB664352 BB664352 |
| c | 27 | 16.8 | 84.0 | 425 | 9 | AI575337 | AI575337 UI-R-Y0-v |
| c | 28 | 16.8 | 84.0 | 440 | 10 | AW533050 | AW533050 UI-R-BU0- |
| c | 29 | 16.8 | 84.0 | 443 | 10 | BB847726 | BB847726 BB847726 |
| c | 30 | 16.8 | 84.0 | 444 | 10 | BB862507 | BB862507 BB862507 |
| c | 31 | 16.8 | 84.0 | 444 | 10 | BB864098 | BB864098 BB864098 |
| c | 32 | 16.8 | 84.0 | 448 | 12 | BG155577 | BG155577 sab45h08. |
| c | 33 | 16.8 | 84.0 | 449 | 10 | BB839787 | BB839787 BB839787 |
| c | 34 | 16.8 | 84.0 | 449 | 10 | BB852497 | BB852497 BB852497 |
| c | 35 | 16.8 | 84.0 | 450 | 13 | BI743226 | BI743226 kx40c04.y |
| c | 36 | 16.8 | 84.0 | 454 | 10 | BB840291 | BB840291 BB840291 |
| c | 37 | 16.8 | 84.0 | 454 | 10 | BB859946 | BB859946 BB859946 |
| c | 38 | 16.8 | 84.0 | 461 | 17 | AZ721917 | AZ721917 RPCI-24-1 |
| c | 39 | 16.8 | 84.0 | 462 | 10 | BB858032 | BB858032 BB858032 |
| c | 40 | 16.8 | 84.0 | 462 | 10 | BB858051 | BB858051 BB858051 |
| c | 41 | 16.8 | 84.0 | 468 | 10 | BB855094 | BB855094 BB855094 |
| c | 42 | 16.8 | 84.0 | 469 | 10 | BB856092 | BB856092 BB856092 |
| c | 43 | 16.8 | 84.0 | 473 | 10 | BB857712 | BB857712 BB857712 |
| c | 44 | 16.8 | 84.0 | 475 | 10 | BB858147 | BB858147 BB858147 |
| | 45 | 16.8 | 84.0 | 475 | 17 | AQ622733 | AQ622733 HS_5340_A |

ALIGNMENTS

RESULT 1
BF713668
LOCUS BF713668 287 bp mRNA linear EST 31-DEC-2001
DEFINITION ESTPBL223 differential display RT-PCR clones Sus scrofa cDNA clone BL223, mRNA sequence.
ACCESSION BF713668
VERSION BF713668.1 GI:18002858
KEYWORDS EST.
SOURCE pig.
ORGANISM Sus scrofa
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Cetartiodactyla; Suina; Suidae; Sus.
REFERENCE 1 (bases 1 to 287)
AUTHORS Ponsuksili,S., Wimmers,K. and Schellander,K.
TITLE Identification of porcine liver ESTs by differential display RT-PCR
JOURNAL Unpublished (2001)
COMMENT Contact: Ponsuksili S
Institute of Animal Breeding Science
University of Bonn
Endenicher Allee 15, Bonn 53115, Germany
Seq primer: T7 SP6
High quality sequence stop: 287
POLYA=No.
FEATURES Location/Qualifiers
source 1. .287
/organism="Sus scrofa"
/db_xref="taxon:9823"
/clone="BL223"
/clone_lib="differential display RT-PCR clones"

/note="Organ: liver; cDNA fragments obtained from differential display RT-PCR banding patterns were cloned into pGEM"
BASE COUNT 74 a 64 c 63 g 86 t
ORIGIN

Query Match 100.0%; Score 20; DB 12; Length 287;
Best Local Similarity 100.0%; Pred. No. 59;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 TCCATGACGTTCCTGATGCT 20
||||||||||||||||||||
Db 14 TCCATGACGTTCCTGATGCT 33

RESULT 2
AI077366/c
LOCUS AI077366 392 bp mRNA linear EST 29-SEP-1998
DEFINITION oy87e11.x1 Soares_fetal_liver_spleen_1NFLS_S1 Homo sapiens cDNA clone IMAGE:1672844 3', mRNA sequence.
ACCESSION AI077366
VERSION AI077366.1 GI:3411774
KEYWORDS EST.
SOURCE human.
ORGANISM Homo sapiens
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
REFERENCE 1 (bases 1 to 392)
AUTHORS NCI-CGAP http://www.ncbi.nlm.nih.gov/ncicgap.
TITLE National Cancer Institute, Cancer Genome Anatomy Project (CGAP), Tumor Gene Index
JOURNAL Unpublished (1997)
COMMENT Contact: Robert Strausberg, Ph.D.
Email: cgapbs-r@mail.nih.gov
This clone is available royalty-free through LLNL ; contact the IMAGE Consortium (info@image.llnl.gov) for further information.
Insert Length: 904 Std Error: 0.00
Seq primer: -40m13 fwd. ET from Amersham
High quality sequence stop: 294.
FEATURES Location/Qualifiers
source 1. .392
/organism="Homo sapiens"
/db_xref="taxon:9606"
/clone="IMAGE:1672844"
/clone_lib="Soares_fetal_liver_spleen_1NFLS_S1"
/sex="male"
/dev_stage="20 week-post conception fetus"
/lab_host="DH10B (ampicillin resistant)"
/note="Organ: Liver and Spleen; Vector: pT7T3D (Pharmacia) with a modified polylinker; Site_1: Pac I; Site_2: Eco RI; This is a subtracted version of the original Soares fetal liver spleen 1NFLS library. 1st strand cDNA was primed with a Pac I - oligo(dT) primer [5' AACTGGAAGAATTAATTAAAGATCTTTTTTTTTTTTTTTTTT 3'], double-stranded cDNA was ligated to Eco RI adaptors (Pharmacia), digested with Pac I and cloned into the Pac I and Eco RI sites of the modified pT7T3 vector. Library went through one round of normalization. Library constructed by Bento Soares and M.Fatima Bonaldo."
BASE COUNT 100 a 86 c 88 g 118 t
ORIGIN

Query Match 87.0%; Score 17.4; DB 9; Length 392;
Best Local Similarity 94.7%; Pred. No. 9.6e+02;
Matches 18; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

Qy 2 CCATGACGTTCCTGATGCT 20
|||||||||||||||| |||
Db 202 CCATGACGTTCCTGAAGCT 184

RESULT 3
AI086210/c
LOCUS AI086210 408 bp mRNA linear EST 28-AUG-1998
DEFINITION ow90d05.s1 Soares_fetal_liver_spleen_1NFLS_S1 Homo sapiens cDNA clone IMAGE:1654089 3', mRNA sequence.
ACCESSION AI086210
VERSION AI086210.1 GI:3424633
KEYWORDS EST.
SOURCE human.
ORGANISM Homo sapiens
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
REFERENCE 1 (bases 1 to 408)
AUTHORS NCI-CGAP http://www.ncbi.nlm.nih.gov/ncicgap.
TITLE National Cancer Institute, Cancer Genome Anatomy Project (CGAP), Tumor Gene Index
JOURNAL Unpublished (1997)
COMMENT Contact: Robert Strausberg, Ph.D.
Email: cgapbs-r@mail.nih.gov
This clone is available royalty-free through LLNL ; contact the IMAGE Consortium (info@image.llnl.gov) for further information.
Insert Length: 720 Std Error: 0.00
Seq primer: -40m13 fwd. ET from Amersham
High quality sequence stop: 346.
FEATURES Location/Qualifiers
source 1. .408
/organism="Homo sapiens"
/db_xref="taxon:9606"
/clone="IMAGE:1654089"
/clone_lib="Soares_fetal_liver_spleen_1NFLS_S1"
/sex="male"
/dev_stage="20 week-post conception fetus"
/lab_host="DH10B (ampicillin resistant)"
/note="Organ: Liver and Spleen; Vector: pT7T3D (Pharmacia) with a modified polylinker; Site_1: Pac I; Site_2: Eco RI; This is a subtracted version of the original Soares fetal liver spleen 1NFLS library. 1st strand cDNA was primed with a Pac I - oligo(dT) primer [5' AACTGGAAGAATTAATTAAAGATCTTTTTTTTTTTTTTTTT 3'], double-stranded cDNA was ligated to Eco RI adaptors (Pharmacia), digested with Pac I and cloned into the Pac I and Eco RI sites of the modified pT7T3 vector. Library went through one round of normalization. Library constructed by Bento Soares and M.Fatima Bonaldo."
BASE COUNT 105 a 91 c 94 g 118 t
ORIGIN

Query Match 87.0%; Score 17.4; DB 9; Length 408;
Best Local Similarity 94.7%; Pred. No. 9.7e+02;
Matches 18; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

Qy 2 CCATGACGTTCCTGATGCT 20
|||||||||||||||| |||
Db 197 CCATGACGTTCCTGAAGCT 179

RESULT 4
AZ364551/c
LOCUS AZ364551 688 bp DNA linear GSS 02-OCT-2000
DEFINITION 1M0110C22R Mouse 10kb plasmid UUGC1M library Mus musculus genomic clone UUGC1M0110C22 R, DNA sequence.
ACCESSION AZ364551
VERSION AZ364551.1 GI:10478251
KEYWORDS GSS.
SOURCE house mouse.
ORGANISM Mus musculus
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
REFERENCE 1 (bases 1 to 688)
AUTHORS Dunn,D., Aoyagi,A., Barber,M., Beacorn,T., Duval,B., Hamil,C., Islam,H., Longacre,S., Mahmoud,M., Meenen,E., Pedersen,T., Reilly,M., Rose,M., Rose,R., Stokes,R., Tingey,A., von Niederhausern,A. and Wright,D.,Weiss,R.
TITLE Mouse whole genome scaffolding with paired end reads from 10kb plasmid inserts

```
  JOURNAL    Unpublished (2000)
  COMMENT    Contact: Robert B. Weiss
             University of Utah Genome Center
             University of Utah
             Rm. 308, Biomedical Polymers Research Bldg., 20 S. 2030 E., SLC, UT
             84112, USA
             Tel: 801 585 5606
             Fax: 801 585 7177
             Email: ddunn@genetics.utah.edu
             Insert Length: 10000   Std Error: 0.00
             Plate: 0110  row: C  column: 22
             Seq primer: CACACAGGAAACAGCTATGACC
             Class: plasmid ends
             High quality sequence stop: 688.
  FEATURES             Location/Qualifiers
       source          1. .688
                       /organism="Mus musculus"
                       /strain="C57BL/6J"
                       /db_xref="taxon:10090"
                       /clone="UUGC1M0110C22"
                       /clone_lib="Mouse 10kb plasmid UUGC1M library"
                       /sex="Male"
                       /lab_host="E. Coli strain XL10-Gold, T1-resistant, F-"
                       /note="Vector: PWD42nv; Purified genomic DNA from M.
                       musculus C57BL/6J (male) was obtained  from the Jackson
                       Laboratory Mouse DNA Resource
                       (http://www.jax.org/resources/documents/dnares/). The DNA
                       was hydrodynamically sheared by repeated passage through a
                       0.005 inch orifice at constant velocity. The sheared DNA
                       was blunt end-repaired with T4 DNA polymerase and T4
                       polynucleotide kinase. Adaptor oligonucleotides were
                       ligated to the blunt ends in high  molar excess. The
                       adaptored DNA was purified and size-selected for a 9.5 to
                       10.5 kb range using preparative agarose gel
                       electrophoresis. Vector DNA was prepared from a derivative
                       of pWD42 (gi|4732114|gb|AF129072.1), a copy-number
                       inducible derivative of plasmid R1. The vector was ligated
                       with adaptors complementary to the insert adaptors and
                       purified. The sheared, adaptored mouse DNA was annealed to
                       adaptored vector DNA, and transformed into
                       chemically-competent E. coli XL10-Gold (Stratagene) cells
                       and selected for ampicillin resistance."
  BASE COUNT      188 a    159 c    141 g    199 t      1 others
  ORIGIN

    Query Match             87.0%;  Score 17.4;  DB 17;  Length 688;
    Best Local Similarity   94.7%;  Pred. No. 1.2e+03;
    Matches   18;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

  Qy       1 TCCATGACGTTCCTGATGC 19
             ||||||| ||||||||||
  Db      76 TCCATGATGTTCCTGATGC 58


  RESULT 5
  AW065908/c
  LOCUS       AW065908                546 bp    mRNA    linear   EST 30-MAR-2000
  DEFINITION  687002G08.y1 687 - Early embryo from Delaware Zea mays cDNA, mRNA
              sequence.
  ACCESSION   AW065908
  VERSION     AW065908.1  GI:6020980
  KEYWORDS    EST.
  SOURCE      Zea mays.
    ORGANISM  Zea mays
              Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
              Spermatophyta; Magnoliophyta; Liliopsida; Poales; Poaceae; PACC
              clade; Panicoideae; Andropogoneae; Zea.
  REFERENCE   1  (bases 1 to 546)
    AUTHORS   Walbot,V.
    TITLE     Maize ESTs from various cDNA libraries sequenced at Stanford
              University
    JOURNAL   Unpublished (1999)
  COMMENT     Contact: Walbot V
              Department of Biological Sciences
              Stanford University
              855 California Ave, Palo Alto, CA 94304, USA
              Tel: 650 723 2227
              Fax: 650 725 8221
              Email: walbot@stanford.edu
              Plate: 687002  row: G  column: 08.
  FEATURES             Location/Qualifiers
       source          1. .546
                       /organism="Zea mays"
                       /cultivar="Illinois High Oil"
                       /db_xref="taxon:4577"
                       /clone_lib="687 - Early embryo from Delaware"
                       /tissue_type="embryo"
                       /dev_stage="14, 21, 28, and 35 days after pollination"
                       /lab_host="E. coli SOLR"
                       /note="Organ: embryo; Vector: pBluescript SK; Site_1: XhoI
                       ; Site_2: EcoRI; Library was prepared by Statagene using
                       the Uni-ZAP XR system (Stratagene BN937328-12). Clones
                       were picked by a Q-bot after blue/white selection
                       (ampicillin resistance - use 100 micrograms/microliter).
                       Developed from a pool of equal amounts of RNA from
                       developing embryos sampled at 14, 21, 28 and 35 days after
                       pollination of the Illinois High Oil Maize Strain Cycle
                       90. This closed strain has been selected for high oil
                       concentration for 90 generations and originates from the
                       1890s era open pollinated variety Burr's White"
  BASE COUNT      113 a    183 c    156 g     94 t
  ORIGIN

    Query Match             85.0%;  Score 17;  DB 10;  Length 546;
    Best Local Similarity   100.0%;  Pred. No. 1.6e+03;
    Matches   17;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

  Qy       1 TCCATGACGTTCCTGAT 17
             |||||||||||||||||
  Db     229 TCCATGACGTTCCTGAT 213


  RESULT 6
  AA855652/c
  LOCUS       AA855652                70 bp    mRNA    linear   EST 06-MAR-1998
  DEFINITION  vw70g01.r1 Stratagene mouse heart (#937316) Mus musculus cDNA clone
              IMAGE:1260336 5' similar to gb:M11301 Mouse (MOUSE);, mRNA
              sequence.
  ACCESSION   AA855652
  VERSION     AA855652.1  GI:2943190
  KEYWORDS    EST.
  SOURCE      house mouse.
    ORGANISM  Mus musculus
              Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
              Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
  REFERENCE   1  (bases 1 to 70)
    AUTHORS   Marra,M., Hillier,L., Allen,M., Bowles,M., Dietrich,N., Dubuque,T.,
              Geisel,S., Kucaba,T., Lacy,M., Le,M., Martin,J., Morris,M.,
              Schellenberg,K., Steptoe,M., Tan,F., Underwood,K., Moore,B.,
              Theising,B., Wylie,T., Lennon,G., Soares,B., Wilson,R. and
              Waterston,R.
    TITLE     The WashU-HHMI Mouse EST Project
    JOURNAL   Unpublished (1996)
  COMMENT     Contact: Marra M/Mouse EST Project
              WashU-HHMI Mouse EST Project
              Washington University School of MedicineP
              4444 Forest Park Parkway, Box 8501, St. Louis, MO 63108
              Tel: 314 286 1800
              Fax: 314 286 1810
              Email: mouseest@watson.wustl.edu
              This clone is available royalty-free through LLNL ; contact the
              IMAGE Consortium (info@image.llnl.gov) for further information.
              MGI:662888
              Seq primer: -28m13 rev1 ET from Amersham
              High quality sequence stop: 19.
  FEATURES             Location/Qualifiers
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     source          1. .70
                     /organism="Mus musculus"
                     /strain="NIH Swiss"
                     /db_xref="taxon:10090"
                     /clone="IMAGE:1260336"
                     /clone_lib="Stratagene mouse heart (#937316)"
                     /sex="pooled"
                     /tissue_type="heart"
                     /dev_stage="13 day embryos"
                     /lab_host="SOLR (kanamycin resistant)"
                     /note="Organ: heart; Vector: pBluescript SK-; Site_1:
                     EcoRI; Site_2: XhoI; Cloned unidirectionally.  Primer:
                     Oligo dT. 93 pooled NIH/Swiss 13 day embryo hearts.
                     Average insert size: 1.0 kb; Uni-ZAP XR Vector; ~5'
                     adaptor sequence: 5' GAATTCGGCACGAG 3' ~3' adaptor
                     sequence: 5' CTCGAGTTTTTTTTTTTTTTTTT 3'"
BASE COUNT       20 a     22 c     17 g     11 t
ORIGIN

  Query Match             84.0%;  Score 16.8;  DB 9;  Length 70;
  Best Local Similarity   90.0%;  Pred. No. 1e+03;
  Matches   18;  Conservative    0;  Mismatches    2;  Indels    0;  Gaps    0;

Qy      1 TCCATGACGTTCCTGATGCT 20
          |||||| || ||||||||||
Db     36 TCCATGTCGGTCCTGATGCT 17


RESULT 7
AA082589/c
LOCUS       AA082589                 97 bp    mRNA    linear   EST 23-DEC-1997
DEFINITION  zn23g09.r1 Stratagene neuroepithelium NT2RAMI 937234 Homo sapiens
            cDNA clone IMAGE:548320 5' similar to TR:G387484 G387484 POL
            PROTEIN ;, mRNA sequence.
ACCESSION   AA082589
VERSION     AA082589.1  GI:1624648
KEYWORDS    EST.
SOURCE      human.
  ORGANISM  Homo sapiens
            Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
            Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
REFERENCE   1  (bases 1 to 97)
  AUTHORS   Hillier,L., Lennon,G., Becker,M., Bonaldo,M.F., Chiapelli,B.,
            Chissoe,S., Dietrich,N., DuBuque,T., Favello,A., Gish,W., Hawkins
            ,M., Hultman,M., Kucaba,T., Lacy,M., Le,M., Le,N., Mardis,E., Moore
            ,B., Morris,M., Parsons,J., Prange,C., Rifkin,L., Rohlfing,T.,
            Schellenberg,K., Soares,M.B., Tan,F., Thierry-Meg,J., Trevaskis,E.,
            Underwood,K., Wohldmann,P., Waterston,R., Wilson,R. and Marra,M.
  TITLE     Generation and analysis of 280,000 human expressed sequence tags
  JOURNAL   Genome Res. 6 (9), 807-828 (1996)
  MEDLINE   97044478
COMMENT     Contact: Wilson RK
            Washington University School of Medicine
            4444 Forest Park Parkway, Box 8501, St. Louis, MO 63108
            Tel: 314 286 1800
            Fax: 314 286 1810
            Email: est@watson.wustl.edu
            WARNING: There is evidence that suggests that the 384-well parent
            plate of this clone contains both human and mouse derived clones.
            Thus, the origin of this clone is uncertain. This caution should be
            kept in mind should you use this clone.

            This clone is available royalty-free through LLNL ; contact the
            IMAGE Consortium (info@image.llnl.gov) for further information.
            Trace considered overall poor quality
            Possible reversed clone: similarity on wrong strand
            Seq primer: -28M13 rev2 from Amersham
            High quality sequence stop: 1.
FEATURES             Location/Qualifiers
     source          1. .97
                     /organism="Homo sapiens"
                     /db_xref="GDB:3926836"
                     /db_xref="taxon:9606"
                     /clone="IMAGE:548320"
                     /clone_lib="Stratagene neuroepithelium NT2RAMI 937234"
                     /dev_stage="Ntera-2/RA+MI neuroepithelial cells"
                     /lab_host="SOLR (kanamycin resistant)"
                     /note="Vector: pBluescript SK-; Site_1: EcoRI; Site_2:
                     XhoI; Cloned unidirectionally.  Primer: Oligo dT. NT2
                     (Ntera-2/c1.D1)  precursor cells induced with Retinoic
                     Acid for 1 week, followed by 3 weeks in mitotic inhibitors
                     (Replate #2). Average insert size: 1.1 kb; Uni-ZAP XR
                     Vector; ~5' adaptor sequence: 5' GAATTCGGCACGAG 3' ~3'
                     adaptor sequence: 5' CTCGAGTTTTTTTTTTTTTTTTT 3'"
BASE COUNT       24 a     31 c     23 g     11 t      8 others
ORIGIN

  Query Match             84.0%;  Score 16.8;  DB 9;  Length 97;
  Best Local Similarity   90.0%;  Pred. No. 1.1e+03;
  Matches   18;  Conservative    0;  Mismatches    2;  Indels    0;  Gaps    0;

Qy      1 TCCATGACGTTCCTGATGCT 20
          |||||| || ||||||||||
Db     44 TCCATGTCGGTCCTGATGCT 25


RESULT 8
BB600029/c
LOCUS       BB600029                 203 bp    mRNA    linear   EST 01-DEC-2000
DEFINITION  BB600029 RIKEN full-length enriched, 12 days embryo spinal ganglion
            Mus musculus cDNA clone D130001L01 5', mRNA sequence.
ACCESSION   BB600029
VERSION     BB600029.1  GI:11508630
KEYWORDS    EST.
SOURCE      house mouse.
  ORGANISM  Mus musculus
            Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
            Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
REFERENCE   1  (bases 1 to 203)
  AUTHORS   Aizawa,K., Akahira,S., Akimura,T., Arai,A., Arakawa,T., Carninci,P.
            , Hanagaki,T., Hayatsu,N., Hiraoka,T., Hirozane,T., Hodoyama,Y.,
            Imotani,K., Ishii,Y., Itoh,M., Izawa,M., Kawai,J., Kojima,Y., Konno
            ,H., Kusakabe,M., Matsuyama,T., Miyazaki,A., Nakamura,M., Nishi,K.,
            Nomura,K., Numazaki,R., Okazaki,Y., Okido,T., Owa,C., Sakai,C.,
            Sakai,K., Sasaki,D., Sato,K., Shibata,K., Shibata,Y., Shinagawa,A.,
            Shiraki,T., Sogabe,Y., Suzuki,H., Tagawa,A., Takahashi,F., Tanaka
            ,T., Toya,T., Watahiki,A., Yamamura,T., Yasunishi,A., Yoshida,K.,
            Yoshiki,A., Muramatsu,M. and Hayashizaki,Y.
  TITLE     RIKEN Mouse ESTs (Aizawa,K. et al. 2000)
  JOURNAL   Unpublished (2000)
COMMENT     Contact: Yoshihide Hayashizaki
            Laboratory for Genome Exploration Research Group, RIKEN Genomic
            Sciences Center(GSC), Yokohama Institute
            The Institute of Physical and Chemical Research (RIKEN)
            1-7-22 Suehiro-cho, Tsurumi-ku, Yokohama, Kanagawa 230-0045, Japan
            Tel: 81-45-503-9222
            Fax: 81-45-503-9216
            Email: genome-res@gsc.riken.go.jp,
            URL:http://genome.gsc.riken.go.jp/
            Carninci,P., Nishiyama,Y., Westover,A., Itoh,M., Nagaoka,S., Sasaki
            ,N., Okazaki,Y., Muramatsu,M. and Hayashizaki,Y.
            Thermostabilization and thermoactivation of thermolabile enzymes by
            trehalose and its application for the synthesis of full length
            cDNA. Proc. Natl. Acad. Sci. U.S.A. 95 (2), 520-524 (1998)
             Itoh,M., Kitsunai,T., Akiyama,J., Shibata,K., Izawa,M., Kawai,J.,
            Tomaru,Y., Carninci,P., Shibata,Y., Ozawa,Y., Muramatsu,M., Okazaki
            ,Y. and Hayashizaki,Y.
             Automated filtration-based high-throughput plasmid preparation
            system. Genome Res. 9 (5), 463-470 (1999)
             Carninci,P. and Hayashizaki,Y.
             High-efficiency full-length cDNA cloning. Methods Enzymol. 303,
            19-44 (1999)
             Please visit our web site (http://genome.rtc.riken.go.jp) for
            further details.
FEATURES             Location/Qualifiers
     source          1. .203
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/organism="Mus musculus"
/db_xref="taxon:10090"
/clone="D130001L01"
/clone_lib="RIKEN full-length enriched, 12 days embryo spinal ganglion"
/tissue_type="spinal ganglion"
/dev_stage="12 days embryo"
/lab_host="DH10B"
/note="Site_1: SalI; Site_2: BamHI; cDNA library was prepared and sequenced in Mouse Genome Encyclopedia Project of Genome Exploration Research Group in Riken Genomic Sciences Center and Genome Science Laboratory in RIKEN. Division of Experimental Animal Research in Riken contributed to prepare mouse tissues. 1st strand cDNA was primed with a primer [5' GAGAGAGAGAGCGGCCGCAACTCGAGTTTTTTTTTTTTTTTVN 3'], cDNA was prepared by using trehalose thermo-activated reverse transcriptase and subsequently enriched for full-length by cap-trapper. Second strand cDNA was prepared with the primer adapter of sequence [5' GAGAGAGAGATTCTCGAGTTAATTAAATTAATCCCCCCCCCCCCCC 3']. cDNA was cleaved with BamHI and XhoI. Vector: a modified pBluescript KS(+) after bulk excision from Lambda FLC I."
BASE COUNT 44 a 39 c 76 g 44 t
ORIGIN

Query Match 84.0%; Score 16.8; DB 10; Length 203;
Best Local Similarity 90.0%; Pred. No. 1.4e+03;
Matches 18; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

Qy 1 TCCATGACGTTCCTGATGCT 20
||||||||||||||| |||
Db 21 TCCATGACGTTCCTGGAGCT 2

RESULT 9
BB590993/c
LOCUS BB590993 216 bp mRNA linear EST 30-NOV-2000
DEFINITION BB590993 RIKEN full-length enriched, 10 days neonate cortex Mus musculus cDNA clone A830001I09 5', mRNA sequence.
ACCESSION BB590993
VERSION BB590993.1 GI:11487537
KEYWORDS EST.
SOURCE house mouse.
ORGANISM Mus musculus
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
REFERENCE 1 (bases 1 to 216)
AUTHORS Aizawa,K., Akahira,S., Akimura,T., Arai,A., Arakawa,T., Carninci,P., Hanagaki,T., Hayatsu,N., Hiraoka,T., Hirozane,T., Hodoyama,Y., Imotani,K., Ishii,Y., Itoh,M., Izawa,M., Kawai,J., Kojima,Y., Konno,H., Kusakabe,M., Matsuyama,T., Miyazaki,A., Nakamura,M., Nishi,K., Nomura,K., Numazaki,R., Okazaki,Y., Okido,T., Owa,C., Sakai,C., Sakai,K., Sasaki,D., Sato,K., Shibata,K., Shibata,Y., Shinagawa,A., Shiraki,T., Sogabe,Y., Suzuki,H., Tagawa,A., Takahashi,F., Tanaka,T., Toya,T., Watahiki,A., Yamamura,T., Yasunishi,A., Yoshida,K., Yoshiki,A., Muramatsu,M. and Hayashizaki,Y.
TITLE RIKEN Mouse ESTs (Aizawa,K. et al. 2000)
JOURNAL Unpublished (2000)
COMMENT Contact: Yoshihide Hayashizaki
Laboratory for Genome Exploration Research Group, RIKEN Genomic Sciences Center(GSC), Yokohama Institute
The Institute of Physical and Chemical Research (RIKEN)
1-7-22 Suehiro-cho, Tsurumi-ku, Yokohama, Kanagawa 230-0045, Japan
Tel: 81-45-503-9222
Fax: 81-45-503-9216
Email: genome-res@gsc.riken.go.jp,
URL:http://genome.gsc.riken.go.jp/
Carninci,P., Nishiyama,Y., Westover,A., Itoh,M., Nagaoka,S., Sasaki,N., Okazaki,Y., Muramatsu,M. and Hayashizaki,Y.
Thermostabilization and thermoactivation of thermolabile enzymes by trehalose and its application for the synthesis of full length cDNA. Proc. Natl. Acad. Sci. U.S.A. 95 (2), 520-524 (1998)
Itoh,M., Kitsunai,T., Akiyama,J., Shibata,K., Izawa,M., Kawai,J., Tomaru,Y., Carninci,P., Shibata,Y., Ozawa,Y., Muramatsu,M., Okazaki,Y. and Hayashizaki,Y.
Automated filtration-based high-throughput plasmid preparation system. Genome Res. 9 (5), 463-470 (1999)
Carninci,P. and Hayashizaki,Y.
High-efficiency full-length cDNA cloning. Methods Enzymol. 303, 19-44 (1999)
Please visit our web site (http://genome.rtc.riken.go.jp) for further details.
FEATURES Location/Qualifiers
source 1. .216
/organism="Mus musculus"
/db_xref="taxon:10090"
/clone="A830001I09"
/clone_lib="RIKEN full-length enriched, 10 days neonate cortex"
/tissue_type="cortex"
/dev_stage="10 days neonate"
/lab_host="DH10B"
/note="Site_1: SalI; Site_2: BamHI; cDNA library was prepared and sequenced in Mouse Genome Encyclopedia Project of Genome Exploration Research Group in Riken Genomic Sciences Center and Genome Science Laboratory in RIKEN. Division of Experimental Animal Research in Riken contributed to prepare mouse tissues. 1st strand cDNA was primed with a primer [5' GAGAGAGAGAAGGATCCAAGAGCTCTTTTTTTTTTTTTTTVN 3'], cDNA was prepared by using trehalose thermo-activated reverse transcriptase and subsequently enriched for full-length by cap-trapper. cDNA went through one round of normalization to Rot = 20.0 and subtraction to Rot = 459.0. Second strand cDNA was prepared with the primer adapter of sequence [5' GAGAGAGAGATTCTCGAGTTAATTAAATTAATCCCCCCCCCCCCCC 3']. cDNA was cleaved with XhoI and BamHI. Vector: a modified pBluescript KS(+) after bulk excision from Lambda FLC I."
BASE COUNT 38 a 52 c 75 g 51 t
ORIGIN

Query Match 84.0%; Score 16.8; DB 10; Length 216;
Best Local Similarity 90.0%; Pred. No. 1.5e+03;
Matches 18; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

Qy 1 TCCATGACGTTCCTGATGCT 20
||||||||||||||| |||
Db 64 TCCATGACGTTCCTGGAGCT 45

RESULT 10
BB597403/c
LOCUS BB597403 227 bp mRNA linear EST 01-DEC-2000
DEFINITION BB597403 RIKEN full-length enriched, 12 days embryo spinal cord Mus musculus cDNA clone C530001C01 5', mRNA sequence.
ACCESSION BB597403
VERSION BB597403.1 GI:11506004
KEYWORDS EST.
SOURCE house mouse.
ORGANISM Mus musculus
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
REFERENCE 1 (bases 1 to 227)
AUTHORS Aizawa,K., Akahira,S., Akimura,T., Arai,A., Arakawa,T., Carninci,P., Hanagaki,T., Hayatsu,N., Hiraoka,T., Hirozane,T., Hodoyama,Y., Imotani,K., Ishii,Y., Itoh,M., Izawa,M., Kawai,J., Kojima,Y., Konno,H., Kusakabe,M., Matsuyama,T., Miyazaki,A., Nakamura,M., Nishi,K., Nomura,K., Numazaki,R., Okazaki,Y., Okido,T., Owa,C., Sakai,C., Sakai,K., Sasaki,D., Sato,K., Shibata,K., Shibata,Y., Shinagawa,A., Shiraki,T., Sogabe,Y., Suzuki,H., Tagawa,A., Takahashi,F., Tanaka,T., Toya,T., Watahiki,A., Yamamura,T., Yasunishi,A., Yoshida,K., Yoshiki,A., Muramatsu,M. and Hayashizaki,Y.
TITLE RIKEN Mouse ESTs (Aizawa,K. et al. 2000)
JOURNAL Unpublished (2000)

```
COMMENT     Contact: Yoshihide Hayashizaki
            Laboratory for Genome Exploration Research Group, RIKEN Genomic
            Sciences Center(GSC), Yokohama Institute
            The Institute of Physical and Chemical Research (RIKEN)
            1-7-22 Suehiro-cho, Tsurumi-ku, Yokohama, Kanagawa 230-0045, Japan
            Tel: 81-45-503-9222
            Fax: 81-45-503-9216
            Email: genome-res@gsc.riken.go.jp,
            URL:http://genome.gsc.riken.go.jp/
            Carninci,P., Nishiyama,Y., Westover,A., Itoh,M., Nagaoka,S., Sasaki
            ,N., Okazaki,Y., Muramatsu,M. and Hayashizaki,Y.
            Thermostabilization and thermoactivation of thermolabile enzymes by
            trehalose and its application for the synthesis of full length
            cDNA. Proc. Natl. Acad. Sci. U.S.A. 95 (2), 520-524 (1998)
             Itoh,M., Kitsunai,T., Akiyama,J., Shibata,K., Izawa,M., Kawai,J.,
            Tomaru,Y., Carninci,P., Shibata,Y., Ozawa,Y., Muramatsu,M., Okazaki
            ,Y. and Hayashizaki,Y.
             Automated filtration-based high-throughput plasmid preparation
            system. Genome Res. 9 (5), 463-470 (1999)
             Carninci,P. and Hayashizaki,Y.
             High-efficiency full-length cDNA cloning. Methods Enzymol. 303,
            19-44 (1999)
             Please visit our web site (http://genome.rtc.riken.go.jp) for
            further details.
FEATURES             Location/Qualifiers
     source          1. .227
                     /organism="Mus musculus"
                     /db_xref="taxon:10090"
                     /clone="C530001C01"
                     /clone_lib="RIKEN full-length enriched, 12 days embryo
                     spinal cord"
                     /tissue_type="spinal cord"
                     /dev_stage="12 days embryo"
                     /lab_host="DH10B"
                     /note="Site_1: SalI; Site_2: BamHI; cDNA library was
                     prepared and sequenced in Mouse Genome Encyclopedia
                     Project of Genome Exploration Research Group in Riken
                     Genomic Sciences Center and Genome Science Laboratory in
                     RIKEN. Division of Experimental Animal Research in Riken
                     contributed to prepare mouse tissues. 1st strand cDNA was
                     primed with a primer [5'
                     GAGAGAGAGAAGGATCCAAGAGCTCTTTTTTTTTTTTTTTTVN 3'], cDNA was
                     prepared by using trehalose thermo-activated reverse
                     transcriptase and subsequently enriched for full-length by
                     cap-trapper. Second strand cDNA was prepared with the
                     primer adapter of sequence [5'
                     GAGAGAGAGATTCTCGAGTTAATTAAATTAATCCCCCCCCCCCCCC 3']. cDNA
                     was cleaved with XhoI and BamHI. Vector: a modified
                     pBluescript KS(+) after bulk excision from Lambda FLC I."
BASE COUNT       46 a     49 c     80 g     52 t
ORIGIN

  Query Match             84.0%;  Score 16.8;  DB 10;  Length 227;
  Best Local Similarity   90.0%;  Pred. No. 1.5e+03;
  Matches   18;  Conservative    0;  Mismatches    2;  Indels    0;  Gaps    0;

Qy       1 TCCATGACGTTCCTGATGCT 20
           ||||||||||||||  |||
Db      33 TCCATGACGTTCCTGGAGCT 14


RESULT 11
BB604665/c
LOCUS       BB604665                 242 bp    mRNA    linear   EST 05-DEC-2000
DEFINITION  BB604665 RIKEN full-length enriched, 0 day neonate lung Mus
            musculus cDNA clone E030005J06 5', mRNA sequence.
ACCESSION   BB604665
VERSION     BB604665.1  GI:11556067
KEYWORDS    EST.
SOURCE      house mouse.
  ORGANISM  Mus musculus
            Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
            Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
REFERENCE   1  (bases 1 to 242)
  AUTHORS   Aizawa,K., Akahira,S., Akimura,T., Arai,A., Arakawa,T., Carninci,P.
            , Hanagaki,T., Hayatsu,N., Hiraoka,T., Hirozane,T., Hodoyama,Y.,
            Imotani,K., Ishii,Y., Itoh,M., Izawa,M., Kawai,J., Kojima,Y., Konno
            ,H., Kusakabe,M., Matsuyama,T., Miyazaki,A., Nakamura,M., Nishi,K.,
            Nomura,K., Numazaki,R., Okazaki,Y., Okido,T., Owa,C., Sakai,C.,
            Sakai,K., Sasaki,D., Sato,K., Shibata,K., Shibata,Y., Shinagawa,A.,
            Shiraki,T., Sogabe,Y., Suzuki,H., Tagawa,A., Takahashi,F., Tanaka
            ,T., Toya,T., Watahiki,A., Yamamura,T., Yasunishi,A., Yoshida,K.,
            Yoshiki,A., Muramatsu,M. and Hayashizaki,Y.
  TITLE     RIKEN Mouse ESTs (Aizawa,K. et al. 2000)
  JOURNAL   Unpublished (2000)
COMMENT     Contact: Yoshihide Hayashizaki
            Laboratory for Genome Exploration Research Group, RIKEN Genomic
            Sciences Center(GSC), Yokohama Institute
            The Institute of Physical and Chemical Research (RIKEN)
            1-7-22 Suehiro-cho, Tsurumi-ku, Yokohama, Kanagawa 230-0045, Japan
            Tel: 81-45-503-9222
            Fax: 81-45-503-9216
            Email: genome-res@gsc.riken.go.jp,
            URL:http://genome.gsc.riken.go.jp/
            Carninci,P., Nishiyama,Y., Westover,A., Itoh,M., Nagaoka,S., Sasaki
            ,N., Okazaki,Y., Muramatsu,M. and Hayashizaki,Y.
            Thermostabilization and thermoactivation of thermolabile enzymes by
            trehalose and its application for the synthesis of full length
            cDNA. Proc. Natl. Acad. Sci. U.S.A. 95 (2), 520-524 (1998)
             Itoh,M., Kitsunai,T., Akiyama,J., Shibata,K., Izawa,M., Kawai,J.,
            Tomaru,Y., Carninci,P., Shibata,Y., Ozawa,Y., Muramatsu,M., Okazaki
            ,Y. and Hayashizaki,Y.
             Automated filtration-based high-throughput plasmid preparation
            system. Genome Res. 9 (5), 463-470 (1999)
             Carninci,P. and Hayashizaki,Y.
             High-efficiency full-length cDNA cloning. Methods Enzymol. 303,
            19-44 (1999)
             Please visit our web site (http://genome.rtc.riken.go.jp) for
            further details.
FEATURES             Location/Qualifiers
     source          1. .242
                     /organism="Mus musculus"
                     /db_xref="taxon:10090"
                     /clone="E030005J06"
                     /clone_lib="RIKEN full-length enriched, 0 day neonate
                     lung"
                     /tissue_type="lung"
                     /dev_stage="0 day neonate"
                     /lab_host="DH10B"
                     /note="Site_1: SalI; Site_2: BamHI; cDNA library was
                     prepared and sequenced in Mouse Genome Encyclopedia
                     Project of Genome Exploration Research Group in Riken
                     Genomic Sciences Center and Genome Science Laboratory in
                     RIKEN. Division of Experimental Animal Research in Riken
                     contributed to prepare mouse tissues. 1st strand cDNA was
                     primed with a primer [5'
                     GAGAGAGAGAGCGGCCGCAACTCGAGTTTTTTTTTTTTTTTVN 3'], cDNA was
                     prepared by using trehalose thermo-activated reverse
                     transcriptase and subsequently enriched for full-length by
                     cap-trapper. Second strand cDNA was prepared with the
                     primer adapter of sequence [5'
                     GAGAGAGAGATTCTCGAGTTAATTAAATTAATCCCCCCCCCCCCCC 3']. cDNA
                     was cleaved with BamHI and XhoI. Vector: a modified
                     pBluescript KS(+) after bulk excision from Lambda FLC I."
BASE COUNT       39 a     47 c    104 g     52 t
ORIGIN

  Query Match             84.0%;  Score 16.8;  DB 10;  Length 242;
  Best Local Similarity   90.0%;  Pred. No. 1.5e+03;
  Matches   18;  Conservative    0;  Mismatches    2;  Indels    0;  Gaps    0;

Qy       1 TCCATGACGTTCCTGATGCT 20
           ||||||||||||||  |||
Db      44 TCCATGACGTTCCTGGAGCT 25
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RESULT 12
BB599612/c
LOCUS BB599612 243 bp mRNA linear EST 01-DEC-2000
DEFINITION BB599612 RIKEN full-length enriched, 9 days embryo Mus musculus cDNA clone D030001M12 5', mRNA sequence.
ACCESSION BB599612
VERSION BB599612.1 GI:11508213
KEYWORDS EST.
SOURCE house mouse.
ORGANISM Mus musculus
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
REFERENCE 1 (bases 1 to 243)
AUTHORS Aizawa,K., Akahira,S., Akimura,T., Arai,A., Arakawa,T., Carninci,P., Hanagaki,T., Hayatsu,N., Hiraoka,T., Hirozane,T., Hodoyama,Y., Imotani,K., Ishii,Y., Itoh,M., Izawa,M., Kawai,J., Kojima,Y., Konno,H., Kusakabe,M., Matsuyama,T., Miyazaki,A., Nakamura,M., Nishi,K., Nomura,K., Numazaki,R., Okazaki,Y., Okido,T., Owa,C., Sakai,C., Sakai,K., Sasaki,D., Sato,K., Shibata,K., Shibata,Y., Shinagawa,A., Shiraki,T., Sogabe,Y., Suzuki,H., Tagawa,A., Takahashi,F., Tanaka,T., Toya,T., Watahiki,A., Yamamura,T., Yasunishi,A., Yoshida,K., Yoshiki,A., Muramatsu,M. and Hayashizaki,Y.
TITLE RIKEN Mouse ESTs (Aizawa,K. et al. 2000)
JOURNAL Unpublished (2000)
COMMENT Contact: Yoshihide Hayashizaki
Laboratory for Genome Exploration Research Group, RIKEN Genomic Sciences Center(GSC), Yokohama Institute
The Institute of Physical and Chemical Research (RIKEN)
1-7-22 Suehiro-cho, Tsurumi-ku, Yokohama, Kanagawa 230-0045, Japan
Tel: 81-45-503-9222
Fax: 81-45-503-9216
Email: genome-res@gsc.riken.go.jp,
URL:http://genome.gsc.riken.go.jp/
Carninci,P., Nishiyama,Y., Westover,A., Itoh,M., Nagaoka,S., Sasaki,N., Okazaki,Y., Muramatsu,M. and Hayashizaki,Y.
Thermostabilization and thermoactivation of thermolabile enzymes by trehalose and its application for the synthesis of full length cDNA. Proc. Natl. Acad. Sci. U.S.A. 95 (2), 520-524 (1998)
Itoh,M., Kitsunai,T., Akiyama,J., Shibata,K., Izawa,M., Kawai,J., Tomaru,Y., Carninci,P., Shibata,Y., Ozawa,Y., Muramatsu,M., Okazaki,Y. and Hayashizaki,Y.
Automated filtration-based high-throughput plasmid preparation system. Genome Res. 9 (5), 463-470 (1999)
Carninci,P. and Hayashizaki,Y.
High-efficiency full-length cDNA cloning. Methods Enzymol. 303, 19-44 (1999)
Please visit our web site (http://genome.rtc.riken.go.jp) for further details.
FEATURES Location/Qualifiers
source 1. .243
/organism="Mus musculus"
/db_xref="taxon:10090"
/clone="D030001M12"
/clone_lib="RIKEN full-length enriched, 9 days embryo"
/dev_stage="9 days embryo"
/lab_host="DH10B"
/note="Site_1: SalI; Site_2: BamHI; cDNA library was prepared and sequenced in Mouse Genome Encyclopedia Project of Genome Exploration Research Group in Riken Genomic Sciences Center and Genome Science Laboratory in RIKEN. Division of Experimental Animal Research in Riken contributed to prepare mouse tissues. 1st strand cDNA was primed with a primer [5' GAGAGAGAGAGCGGCCGCAACTCGAGTTTTTTTTTTTTTTTTVN 3'], cDNA was prepared by using trehalose thermo-activated reverse transcriptase and subsequently enriched for full-length by cap-trapper. Second strand cDNA was prepared with the primer adapter of sequence [5' GAGAGAGAGATTCTCGAGTTAATTAAATTAATCCCCCCCCCCCCC 3']. cDNA was cleaved with BamHI and XhoI. Vector: a modified pBluescript KS(+) after bulk excision from Lambda FLC I."
BASE COUNT 44 a 53 c 90 g 56 t
ORIGIN

Query Match 84.0%; Score 16.8; DB 10; Length 243;
Best Local Similarity 90.0%; Pred. No. 1.5e+03;
Matches 18; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

Qy 1 TCCATGACGTTCCTGATGCT 20
||||||||||||||| |||
Db 53 TCCATGACGTTCCTGGAGCT 34

RESULT 13
BB603788/c
LOCUS BB603788 245 bp mRNA linear EST 05-DEC-2000
DEFINITION BB603788 RIKEN full-length enriched, 15 days embryo head Mus musculus cDNA clone D930006F16 5', mRNA sequence.
ACCESSION BB603788
VERSION BB603788.1 GI:11555190
KEYWORDS EST.
SOURCE house mouse.
ORGANISM Mus musculus
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
REFERENCE 1 (bases 1 to 245)
AUTHORS Aizawa,K., Akahira,S., Akimura,T., Arai,A., Arakawa,T., Carninci,P., Hanagaki,T., Hayatsu,N., Hiraoka,T., Hirozane,T., Hodoyama,Y., Imotani,K., Ishii,Y., Itoh,M., Izawa,M., Kawai,J., Kojima,Y., Konno,H., Kusakabe,M., Matsuyama,T., Miyazaki,A., Nakamura,M., Nishi,K., Nomura,K., Numazaki,R., Okazaki,Y., Okido,T., Owa,C., Sakai,C., Sakai,K., Sasaki,D., Sato,K., Shibata,K., Shibata,Y., Shinagawa,A., Shiraki,T., Sogabe,Y., Suzuki,H., Tagawa,A., Takahashi,F., Tanaka,T., Toya,T., Watahiki,A., Yamamura,T., Yasunishi,A., Yoshida,K., Yoshiki,A., Muramatsu,M. and Hayashizaki,Y.
TITLE RIKEN Mouse ESTs (Aizawa,K. et al. 2000)
JOURNAL Unpublished (2000)
COMMENT Contact: Yoshihide Hayashizaki
Laboratory for Genome Exploration Research Group, RIKEN Genomic Sciences Center(GSC), Yokohama Institute
The Institute of Physical and Chemical Research (RIKEN)
1-7-22 Suehiro-cho, Tsurumi-ku, Yokohama, Kanagawa 230-0045, Japan
Tel: 81-45-503-9222
Fax: 81-45-503-9216
Email: genome-res@gsc.riken.go.jp,
URL:http://genome.gsc.riken.go.jp/
Carninci,P., Nishiyama,Y., Westover,A., Itoh,M., Nagaoka,S., Sasaki,N., Okazaki,Y., Muramatsu,M. and Hayashizaki,Y.
Thermostabilization and thermoactivation of thermolabile enzymes by trehalose and its application for the synthesis of full length cDNA. Proc. Natl. Acad. Sci. U.S.A. 95 (2), 520-524 (1998)
Itoh,M., Kitsunai,T., Akiyama,J., Shibata,K., Izawa,M., Kawai,J., Tomaru,Y., Carninci,P., Shibata,Y., Ozawa,Y., Muramatsu,M., Okazaki,Y. and Hayashizaki,Y.
Automated filtration-based high-throughput plasmid preparation system. Genome Res. 9 (5), 463-470 (1999)
Carninci,P. and Hayashizaki,Y.
High-efficiency full-length cDNA cloning. Methods Enzymol. 303, 19-44 (1999)
Please visit our web site (http://genome.rtc.riken.go.jp) for further details.
FEATURES Location/Qualifiers
source 1. .245
/organism="Mus musculus"
/strain="C57BL/6J"
/db_xref="taxon:10090"
/clone="D930006F16"
/clone_lib="RIKEN full-length enriched, 15 days embryo head"
/sex="mixed"
/tissue_type="head"
/dev_stage="15 days embryo"
/lab_host="DH10B"
/note="Site_1: SalI; Site_2: BamHI; cDNA library was prepared and sequenced in Mouse Genome Encyclopedia Project of Genome Exploration Research Group in Riken

Genomic Sciences Center and Genome Science Laboratory in RIKEN. Division of Experimental Animal Research in Riken contributed to prepare mouse tissues. 1st strand cDNA was primed with a primer [5' GAGAGAGAGAAGGATCCAAGAGCTCTTTTTTTTTTTTTTTVN 3'], cDNA was prepared by using trehalose thermo-activated reverse transcriptase and subsequently enriched for full-length by cap-trapper. Second strand cDNA was prepared with the primer adapter of sequence [5' GAGAGAGAGATTCTCGAGTTAATTAAATTAATCCCCCCCCCCCCCC 3']. cDNA was cloned into the XhoI and BamHI sites. Vector: a modified pBluescript KS(+) after bulk excision from Lambda FLC I"

BASE COUNT 50 a 47 c 91 g 57 t
ORIGIN

Query Match 84.0%; Score 16.8; DB 10; Length 245;
Best Local Similarity 90.0%; Pred. No. 1.5e+03;
Matches 18; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

Qy 1 TCCATGACGTTCCTGATGCT 20
||||||||||||||| |||
Db 51 TCCATGACGTTCCTGGAGCT 32

RESULT 14
BB596258/c
LOCUS BB596258 266 bp mRNA linear EST 30-NOV-2000
DEFINITION BB596258 RIKEN full-length enriched, 0 day neonate cerebellum Mus musculus cDNA clone C230005G02 5', mRNA sequence.
ACCESSION BB596258
VERSION BB596258.1 GI:11492860
KEYWORDS EST.
SOURCE house mouse.
ORGANISM Mus musculus
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
REFERENCE 1 (bases 1 to 266)
AUTHORS Aizawa,K., Akahira,S., Akimura,T., Arai,A., Arakawa,T., Carninci,P., Hanagaki,T., Hayatsu,N., Hiraoka,T., Hirozane,T., Hodoyama,Y., Imotani,K., Ishii,Y., Itoh,M., Izawa,M., Kawai,J., Kojima,Y., Konno,H., Kusakabe,M., Matsuyama,T., Miyazaki,A., Nakamura,M., Nishi,K., Nomura,K., Numazaki,R., Okazaki,Y., Okido,T., Owa,C., Sakai,C., Sakai,K., Sasaki,D., Sato,K., Shibata,K., Shibata,Y., Shinagawa,A., Shiraki,T., Sogabe,Y., Suzuki,H., Tagawa,A., Takahashi,F., Tanaka,T., Toya,T., Watahiki,A., Yamamura,T., Yasunishi,A., Yoshida,K., Yoshiki,A., Muramatsu,M. and Hayashizaki,Y.
TITLE RIKEN Mouse ESTs (Aizawa,K. et al. 2000)
JOURNAL Unpublished (2000)
COMMENT Contact: Yoshihide Hayashizaki
Laboratory for Genome Exploration Research Group, RIKEN Genomic Sciences Center(GSC), Yokohama Institute
The Institute of Physical and Chemical Research (RIKEN)
1-7-22 Suehiro-cho, Tsurumi-ku, Yokohama, Kanagawa 230-0045, Japan
Tel: 81-45-503-9222
Fax: 81-45-503-9216
Email: genome-res@gsc.riken.go.jp,
URL:http://genome.gsc.riken.go.jp/
Carninci,P., Nishiyama,Y., Westover,A., Itoh,M., Nagaoka,S., Sasaki,N., Okazaki,Y., Muramatsu,M. and Hayashizaki,Y.
Thermostabilization and thermoactivation of thermolabile enzymes by trehalose and its application for the synthesis of full length cDNA. Proc. Natl. Acad. Sci. U.S.A. 95 (2), 520-524 (1998)
Itoh,M., Kitsunai,T., Akiyama,J., Shibata,K., Izawa,M., Kawai,J., Tomaru,Y., Carninci,P., Shibata,Y., Ozawa,Y., Muramatsu,M., Okazaki,Y. and Hayashizaki,Y.
Automated filtration-based high-throughput plasmid preparation system. Genome Res. 9 (5), 463-470 (1999)
Carninci,P. and Hayashizaki,Y.
High-efficiency full-length cDNA cloning. Methods Enzymol. 303, 19-44 (1999)
Please visit our web site (http://genome.rtc.riken.go.jp) for further details.

FEATURES Location/Qualifiers
source 1. .266
/organism="Mus musculus"
/db_xref="taxon:10090"
/clone="C230005G02"
/clone_lib="RIKEN full-length enriched, 0 day neonate cerebellum"
/tissue_type="cerebellum"
/dev_stage="0 day neonate"
/lab_host="DH10B"
/note="Site_1: SalI; Site_2: BamHI; cDNA library was prepared and sequenced in Mouse Genome Encyclopedia Project of Genome Exploration Research Group in Riken Genomic Sciences Center and Genome Science Laboratory in RIKEN. Division of Experimental Animal Research in Riken contributed to prepare mouse tissues. 1st strand cDNA was primed with a primer [5' GAGAGAGAGAAGGATCCAAGAGCTCTTTTTTTTTTTTTTTVN 3'], cDNA was prepared by using trehalose thermo-activated reverse transcriptase and subsequently enriched for full-length by cap-trapper. cDNA went through one round of normalization to Rot = 20.0 and subtraction to Rot = 479.0. Second strand cDNA was prepared with the primer adapter of sequence [5' GAGAGAGAGATTCTCGAGTTAATTAAATTAATCCCCCCCCCCCCCC 3']. cDNA was cleaved with XhoI and BamHI. Vector: a modified pBluescript KS(+) after bulk excision from Lambda FLC I."

BASE COUNT 50 a 60 c 92 g 64 t
ORIGIN

Query Match 84.0%; Score 16.8; DB 10; Length 266;
Best Local Similarity 90.0%; Pred. No. 1.6e+03;
Matches 18; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

Qy 1 TCCATGACGTTCCTGATGCT 20
||||||||||||||| |||
Db 45 TCCATGACGTTCCTGGAGCT 26

RESULT 15
BB570188/c
LOCUS BB570188 271 bp mRNA linear EST 29-NOV-2000
DEFINITION BB570188 RIKEN full-length enriched, 16 days embryo head Mus musculus cDNA clone 4121401K13 5', mRNA sequence.
ACCESSION BB570188
VERSION BB570188.1 GI:11461096
KEYWORDS EST.
SOURCE house mouse.
ORGANISM Mus musculus
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
REFERENCE 1 (bases 1 to 271)
AUTHORS Aizawa,K., Akahira,S., Akimura,T., Arai,A., Arakawa,T., Carninci,P., Hanagaki,T., Hayatsu,N., Hiraoka,T., Hirozane,T., Hodoyama,Y., Imotani,K., Ishii,Y., Itoh,M., Izawa,M., Kawai,J., Kojima,Y., Konno,H., Kusakabe,M., Matsuyama,T., Miyazaki,A., Nakamura,M., Nishi,K., Nomura,K., Numazaki,R., Okazaki,Y., Okido,T., Owa,C., Sakai,C., Sakai,K., Sasaki,D., Sato,K., Shibata,K., Shibata,Y., Shinagawa,A., Shiraki,T., Sogabe,Y., Suzuki,H., Tagawa,A., Takahashi,F., Tanaka,T., Toya,T., Watahiki,A., Yamamura,T., Yasunishi,A., Yoshida,K., Yoshiki,A., Muramatsu,M. and Hayashizaki,Y.
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COMMENT Contact: Yoshihide Hayashizaki
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The Institute of Physical and Chemical Research (RIKEN)
1-7-22 Suehiro-cho, Tsurumi-ku, Yokohama, Kanagawa 230-0045, Japan
Tel: 81-45-503-9222
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URL:http://genome.gsc.riken.go.jp/
Carninci,P., Nishiyama,Y., Westover,A., Itoh,M., Nagaoka,S., Sasaki

,N., Okazaki,Y., Muramatsu,M. and Hayashizaki,Y.
Thermostabilization and thermoactivation of thermolabile enzymes by trehalose and its application for the synthesis of full length cDNA. Proc. Natl. Acad. Sci. U.S.A. 95 (2), 520-524 (1998)
Itoh,M., Kitsunai,T., Akiyama,J., Shibata,K., Izawa,M., Kawai,J., Tomaru,Y., Carninci,P., Shibata,Y., Ozawa,Y., Muramatsu,M., Okazaki ,Y. and Hayashizaki,Y.
Automated filtration-based high-throughput plasmid preparation system. Genome Res. 9 (5), 463-470 (1999)
Carninci,P. and Hayashizaki,Y.
High-efficiency full-length cDNA cloning. Methods Enzymol. 303, 19-44 (1999)
Please visit our web site (http://genome.rtc.riken.go.jp) for further details.

FEATURES Location/Qualifiers
source 1. .271
/organism="Mus musculus"
/strain="C57BL/6J"
/db_xref="taxon:10090"
/clone="4121401K13"
/clone_lib="RIKEN full-length enriched, 16 days embryo head"
/sex="mixed"
/tissue_type="head"
/dev_stage="16 days embryo"
/lab_host="DH10B"
/note="Site_1: SalI; Site_2: BamHI; cDNA library was prepared and sequenced in Mouse Genome Encyclopedia Project of Genome Exploration Research Group in Riken Genomic Sciences Center and Genome Science Laboratory in RIKEN. Division of Experimental Animal Research in Riken contributed to prepare mouse tissues. 1st strand cDNA was primed with a primer [5' GAGAGAGAGAAGGATCCAAGAGCTCTTTTTTTTTTTTTTTVN 3']. cDNA was prepared by using trehalose thermo-activated reverse transcriptase and subsequently enriched for full-length by cap-trapper. Second strand cDNA was prepared with the primer adapter of sequence [5' GAGAGAGAGATTCTCGAGTTAATTAAATTAATCCCCCCCCCCCCC 3']. cDNA was cloned into the XhoI and BamHI sites. Vector: a modified pBluescript KS(+) after bulk excision from Lambda FLC I"

BASE COUNT 51 a 66 c 89 g 65 t
ORIGIN

Query Match 84.0%; Score 16.8; DB 10; Length 271;
Best Local Similarity 90.0%; Pred. No. 1.6e+03;
Matches 18; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

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Qy       1 TCCATGACGTTCCTGATGCT 20
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Db      81 TCCATGACGTTCCTGGAGCT 62
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Job time : 1111.25 secs

GenCore version 5.1.4_p5_4578


OM nucleic - nucleic search, using sw model

Run on: March 1, 2003, 21:01:26 ; Search time 41.5 Seconds
(without alignments)
147.796 Million cell updates/sec

Title: US-09-818-918-44
Perfect score: 20
Sequence: 1 tccatgacgttcctgatgct 20

Scoring table: IDENTITY_NUC
Gapop 10.0 , Gapext 1.0

Searched: 441362 seqs, 153338381 residues

Total number of hits satisfying chosen parameters: 882724

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : Issued_Patents_NA:*
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Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

| Result No. | Score | % Query Match | Length | DB | ID | Description |
|---|---|---|---|---|---|---|
| 1 | 20 | 100.0 | 20 | 2 | US-09-133-774-11 | Sequence 11, Appl |
| 2 | 20 | 100.0 | 20 | 3 | US-08-386-063-25 | Sequence 25, Appl |
| 3 | 20 | 100.0 | 20 | 3 | US-09-303-862-11 | Sequence 11, Appl |
| 4 | 20 | 100.0 | 20 | 4 | US-08-386-063-25 | Sequence 25, Appl |
| 5 | 20 | 100.0 | 20 | 4 | US-08-738-652-7 | Sequence 7, Appli |
| 6 | 20 | 100.0 | 20 | 4 | US-08-738-652-35 | Sequence 35, Appl |
| 7 | 20 | 100.0 | 20 | 4 | US-08-738-652-44 | Sequence 44, Appl |
| 8 | 20 | 100.0 | 20 | 4 | US-08-738-652-54 | Sequence 54, Appl |
| 9 | 20 | 100.0 | 20 | 4 | US-09-286-098-24 | Sequence 24, Appl |
| 10 | 20 | 100.0 | 20 | 4 | US-08-960-774-7 | Sequence 7, Appli |
| 11 | 20 | 100.0 | 20 | 4 | US-09-082-649B-68 | Sequence 68, Appl |
| 12 | 20 | 100.0 | 20 | 4 | US-09-082-649B-79 | Sequence 79, Appl |
| 13 | 20 | 100.0 | 20 | 4 | US-09-325-193A-19 | Sequence 19, Appl |
| 14 | 20 | 100.0 | 20 | 4 | US-09-191-170-24 | Sequence 24, Appl |
| 15 | 20 | 100.0 | 20 | 4 | US-09-171-425-5 | Sequence 5, Appli |
| 16 | 20 | 100.0 | 20 | 4 | US-09-171-425-14 | Sequence 14, Appl |
| 17 | 20 | 100.0 | 29 | 4 | US-08-848-229-2 | Sequence 2, Appli |
| 18 | 18.4 | 92.0 | 20 | 4 | US-08-738-652-3 | Sequence 3, Appli |
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| 20 | 18.4 | 92.0 | 20 | 4 | US-08-738-652-40 | Sequence 40, Appl |
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| 23 | 18.4 | 92.0 | 20 | 4 | US-08-738-652-46 | Sequence 46, Appl |
| 24 | 18.4 | 92.0 | 20 | 4 | US-08-738-652-53 | Sequence 53, Appl |
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| 27 | 18.4 | 92.0 | 20 | 4 | US-09-286-098-48 | Sequence 48, Appl |
| 28 | 18.4 | 92.0 | 20 | 4 | US-09-286-098-49 | Sequence 49, Appl |
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| 30 | 18.4 | 92.0 | 20 | 4 | US-09-286-098-56 | Sequence 56, Appl |
| 31 | 18.4 | 92.0 | 20 | 4 | US-09-286-098-57 | Sequence 57, Appl |
| 32 | 18.4 | 92.0 | 20 | 4 | US-08-960-774-3 | Sequence 3, Appli |
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| 34 | 18.4 | 92.0 | 20 | 4 | US-08-960-774-35 | Sequence 35, Appl |
| 35 | 18.4 | 92.0 | 20 | 4 | US-08-960-774-38 | Sequence 38, Appl |
| 36 | 18.4 | 92.0 | 20 | 4 | US-08-960-774-39 | Sequence 39, Appl |
| 37 | 18.4 | 92.0 | 20 | 4 | US-08-960-774-87 | Sequence 87, Appl |
| 38 | 18.4 | 92.0 | 20 | 4 | US-08-960-774-89 | Sequence 89, Appl |
| 39 | 18.4 | 92.0 | 20 | 4 | US-09-082-649B-71 | Sequence 71, Appl |
| 40 | 18.4 | 92.0 | 20 | 4 | US-09-325-193A-38 | Sequence 38, Appl |
| 41 | 18.4 | 92.0 | 20 | 4 | US-09-325-193A-42 | Sequence 42, Appl |
| 42 | 18.4 | 92.0 | 20 | 4 | US-09-325-193A-43 | Sequence 43, Appl |
| 43 | 18.4 | 92.0 | 20 | 4 | US-09-325-193A-44 | Sequence 44, Appl |
| 44 | 18.4 | 92.0 | 20 | 4 | US-09-325-193A-49 | Sequence 49, Appl |
| 45 | 18.4 | 92.0 | 20 | 4 | US-09-191-170-40 | Sequence 40, Appl |

ALIGNMENTS

RESULT 1
US-09-133-774-11
; Sequence 11, Application US/09133774B
; Patent No. 5962636
; GENERAL INFORMATION:
; APPLICANT: Bachmaier, Kurt
; APPLICANT: Hessel, Andrew J.
; APPLICANT: Neu M.D., Nikolaus
; APPLICANT: Penninger, Josef M.
; TITLE OF INVENTION: No. 5962636el Peptides Capable of Modulating Inflammatory Hear
; TITLE OF INVENTION: Disease
; FILE REFERENCE: A-536
; CURRENT APPLICATION NUMBER: US/09/133,774B
; CURRENT FILING DATE: 1998-08-12
; NUMBER OF SEQ ID NOS: 26
; SOFTWARE: PatentIn Ver. 2.0
; SEQ ID NO 11
; LENGTH: 20
; TYPE: DNA
; ORGANISM: Chlamydia trachomatis
; FEATURE:
; OTHER INFORMATION: An oligonucleotide derived from the DNA encoding a
; OTHER INFORMATION: 60 kDa cysteine rich outer membrane protein from
; OTHER INFORMATION: Chlamydia trachomatis.
US-09-133-774-11

Query Match 100.0%; Score 20; DB 2; Length 20;
Best Local Similarity 100.0%; Pred. No. 0.2;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 TCCATGACGTTCCTGATGCT 20
||||||||||||||||||||
Db 1 TCCATGACGTTCCTGATGCT 20

RESULT 2
US-08-386-063-25
; Sequence 25, Application US/08386063
; Patent No. 6008200
; GENERAL INFORMATION:
; APPLICANT: Arthur M. Krieg, M.D.
; TITLE OF INVENTION: IMMUNOMODULATORY OLIGONUCLEOTIDES
; NUMBER OF SEQUENCES: 27
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: LAHIVE & COCKFIELD
; STREET: 60 STATE STREET, SUITE 510
; CITY: BOSTON
; STATE: MASSACHUSETTS
; COUNTRY: USA
; ZIP: 02109-1875

```
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  ASCII text
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/386,063
;      FILING DATE:
;      CLASSIFICATION:  424
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  ARNOLD, BETH E.
;      REGISTRATION NUMBER:  35,430
;      REFERENCE/DOCKET NUMBER:  UIZ-013CP
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  (617)227-7400
;      TELEFAX:  (617)227-5941
;  INFORMATION FOR SEQ ID NO:  25:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  20 base pairs
;      TYPE:  nucleic acid
;      STRANDEDNESS:  single
;      TOPOLOGY:  linear
;    MOLECULE TYPE:  DNA
US-08-386-063-25

  Query Match           100.0%;  Score 20;  DB 3;  Length 20;
  Best Local Similarity  100.0%;  Pred. No. 0.2;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGACGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATGACGTTCCTGATGCT 20


RESULT 3
US-09-303-862-11
; Sequence 11, Application US/09303862
; Patent No. 6034230
; GENERAL INFORMATION:
;  APPLICANT: Bachmaier, Kurt
;  APPLICANT: Hessel, Andrew J.
;  APPLICANT: Neu M.D., Nikolaus
;  APPLICANT: Penninger, Josef M.
;  TITLE OF INVENTION: No. 6034230el Peptides Capable of Modulating Inflammatory Heart
;  TITLE OF INVENTION: Disease
;  FILE REFERENCE: A-536
;  CURRENT APPLICATION NUMBER: US/09/303,862
;  CURRENT FILING DATE: 1999-05-03
;  EARLIER APPLICATION NUMBER: 09/133,774
;  EARLIER FILING DATE: 1998-08-12
;  NUMBER OF SEQ ID NOS: 26
;  SOFTWARE: PatentIn Ver. 2.0
; SEQ ID NO 11
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Chlamydia trachomatis
;   FEATURE:
;   OTHER INFORMATION: An oligonucleotide derived from the DNA encoding a
;   OTHER INFORMATION: 60 kDa cysteine rich outer membrane protein from
;   OTHER INFORMATION: Chlamydia trachomatis.
US-09-303-862-11

  Query Match           100.0%;  Score 20;  DB 3;  Length 20;
  Best Local Similarity  100.0%;  Pred. No. 0.2;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGACGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATGACGTTCCTGATGCT 20


RESULT 4
US-08-386-063-25
; Sequence 25, Application US/08386063
; Patent No. 6194388
; GENERAL INFORMATION:
;  APPLICANT:  Arthur M. Krieg, M.D.
;  TITLE OF INVENTION:  IMMUNOMODULATORY OLIGONUCLEOTIDES
;  NUMBER OF SEQUENCES:  27
;  CORRESPONDENCE ADDRESS:
;    ADDRESSEE:  LAHIVE & COCKFIELD
;    STREET:  60 STATE STREET, SUITE 510
;    CITY:  BOSTON
;    STATE:  MASSACHUSETTS
;    COUNTRY:  USA
;    ZIP:  02109-1875
;  COMPUTER READABLE FORM:
;    MEDIUM TYPE:  Floppy disk
;    COMPUTER:  IBM PC compatible
;    OPERATING SYSTEM:  PC-DOS/MS-DOS
;    SOFTWARE:  ASCII text
;  CURRENT APPLICATION DATA:
;    APPLICATION NUMBER:  US/08/386,063
;    FILING DATE:
;    CLASSIFICATION:
;  ATTORNEY/AGENT INFORMATION:
;    NAME:  ARNOLD, BETH E.
;    REGISTRATION NUMBER:  35,430
;    REFERENCE/DOCKET NUMBER:  UIZ-013CP
;  TELECOMMUNICATION INFORMATION:
;    TELEPHONE:  (617)227-7400
;    TELEFAX:  (617)227-5941
;  INFORMATION FOR SEQ ID NO:  25:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  20 base pairs
;      TYPE:  nucleic acid
;      STRANDEDNESS:  single
;      TOPOLOGY:  linear
;    MOLECULE TYPE:  DNA
US-08-386-063-25

  Query Match           100.0%;  Score 20;  DB 4;  Length 20;
  Best Local Similarity  100.0%;  Pred. No. 0.2;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGACGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATGACGTTCCTGATGCT 20


RESULT 5
US-08-738-652-7
; Sequence 7, Application US/08738652B
; Patent No. 6207646
; GENERAL INFORMATION:
;  APPLICANT: Krieg, Arthur M.
;  TITLE OF INVENTION: Immunostimulatory Nucleic Acid Molecules
;  FILE REFERENCE: C1039/7004 HCL
;  CURRENT APPLICATION NUMBER: US/08/738,652B
;  CURRENT FILING DATE: 1996-10-30
;  EARLIER APPLICATION NUMBER: US 08/276,358
;  EARLIER FILING DATE: 1994-07-15
;  EARLIER APPLICATION NUMBER: US 08/386,063
;  EARLIER FILING DATE: 1995-02-07
;  NUMBER OF SEQ ID NOS: 55
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 7
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic oligonucleotide
US-08-738-652-7

  Query Match           100.0%;  Score 20;  DB 4;  Length 20;
  Best Local Similarity  100.0%;  Pred. No. 0.2;
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  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGACGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATGACGTTCCTGATGCT 20


RESULT 6
US-08-738-652-35
; Sequence 35, Application US/08738652B
; Patent No. 6207646
; GENERAL INFORMATION:
;  APPLICANT: Krieg, Arthur M.
;  TITLE OF INVENTION: Immunostimulatory Nucleic Acid Molecules
;  FILE REFERENCE: C1039/7004 HCL
;  CURRENT APPLICATION NUMBER: US/08/738,652B
;  CURRENT FILING DATE: 1996-10-30
;  EARLIER APPLICATION NUMBER: US 08/276,358
;  EARLIER FILING DATE: 1994-07-15
;  EARLIER APPLICATION NUMBER: US 08/386,063
;  EARLIER FILING DATE: 1995-02-07
;  NUMBER OF SEQ ID NOS: 55
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 35
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic oligonucleotide
US-08-738-652-35

  Query Match            100.0%;  Score 20;  DB 4;  Length 20;
  Best Local Similarity  100.0%;  Pred. No. 0.2;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGACGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATGACGTTCCTGATGCT 20


RESULT 7
US-08-738-652-44
; Sequence 44, Application US/08738652B
; Patent No. 6207646
; GENERAL INFORMATION:
;  APPLICANT: Krieg, Arthur M.
;  TITLE OF INVENTION: Immunostimulatory Nucleic Acid Molecules
;  FILE REFERENCE: C1039/7004 HCL
;  CURRENT APPLICATION NUMBER: US/08/738,652B
;  CURRENT FILING DATE: 1996-10-30
;  EARLIER APPLICATION NUMBER: US 08/276,358
;  EARLIER FILING DATE: 1994-07-15
;  EARLIER APPLICATION NUMBER: US 08/386,063
;  EARLIER FILING DATE: 1995-02-07
;  NUMBER OF SEQ ID NOS: 55
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 44
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic oligonucleotide
US-08-738-652-44

  Query Match            100.0%;  Score 20;  DB 4;  Length 20;
  Best Local Similarity  100.0%;  Pred. No. 0.2;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGACGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATGACGTTCCTGATGCT 20


RESULT 8
US-08-738-652-54
; Sequence 54, Application US/08738652B
; Patent No. 6207646
; GENERAL INFORMATION:
;  APPLICANT: Krieg, Arthur M.
;  TITLE OF INVENTION: Immunostimulatory Nucleic Acid Molecules
;  FILE REFERENCE: C1039/7004 HCL
;  CURRENT APPLICATION NUMBER: US/08/738,652B
;  CURRENT FILING DATE: 1996-10-30
;  EARLIER APPLICATION NUMBER: US 08/276,358
;  EARLIER FILING DATE: 1994-07-15
;  EARLIER APPLICATION NUMBER: US 08/386,063
;  EARLIER FILING DATE: 1995-02-07
;  NUMBER OF SEQ ID NOS: 55
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 54
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic oligonucleotide
US-08-738-652-54

  Query Match            100.0%;  Score 20;  DB 4;  Length 20;
  Best Local Similarity  100.0%;  Pred. No. 0.2;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGACGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATGACGTTCCTGATGCT 20


RESULT 9
US-09-286-098-24
; Sequence 24, Application US/09286098
; Patent No. 6218371
; GENERAL INFORMATION:
;  APPLICANT: Krieg, Arthur M.
;  APPLICANT: Weiner, George
;  TITLE OF INVENTION: Methods and Products for Stimulating the
;  TITLE OF INVENTION: Immune System Using Immunotherapeutic Oligonucleotides and
;  TITLE OF INVENTION: Cytokines
;  FILE REFERENCE: C1039/7026/HCL
;  CURRENT APPLICATION NUMBER: US/09/286,098
;  CURRENT FILING DATE: 1999-04-02
;  EARLIER APPLICATION NUMBER: US 60/080,729
;  EARLIER FILING DATE: 1998-04-03
;  NUMBER OF SEQ ID NOS: 105
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 24
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic Sequence
US-09-286-098-24

  Query Match            100.0%;  Score 20;  DB 4;  Length 20;
  Best Local Similarity  100.0%;  Pred. No. 0.2;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGACGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATGACGTTCCTGATGCT 20


RESULT 10
US-08-960-774-7
; Sequence 7, Application US/08960774
; Patent No. 6239116
;  GENERAL INFORMATION:
;    APPLICANT:  Krieg et al.,
```

```
;    TITLE OF INVENTION:  IMMUNOSTIMULATORY NUCLEIC ACID MOLECULES
;    NUMBER OF SEQUENCES:  111
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Fish & Richardson P.C.
;      STREET:  4225 Executive Square, Suite 1400
;      CITY:  La Jolla
;      STATE:  CA
;      COUNTRY:  USA
;      ZIP:  92037
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  ASCII text
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/960,774
;      FILING DATE:  30-October-1997
;      CLASSIFICATION:  514
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  U.S. Serial No. 6239116  08/738,652
;      FILING DATE:  October 30, 1996
;      CLASSIFICATION:  514
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Haile, Lisa A.
;      REGISTRATION NUMBER:  38,347
;      REFERENCE/DOCKET NUMBER:  08918/012001
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  619/678-5070
;      TELEFAX:  619/678-5099
;  INFORMATION FOR SEQ ID NO:  7:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  20 base pairs
;      TYPE:  nucleic acid
;      STRANDEDNESS:  single
;      TOPOLOGY:  linear
;    MOLECULE TYPE:  cDNA
US-08-960-774-7

  Query Match             100.0%;  Score 20;  DB 4;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 0.2;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGACGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATGACGTTCCTGATGCT 20


RESULT 11
US-09-082-649B-68
; Sequence 68, Application US/09082649B
; Patent No. 6339068
; GENERAL INFORMATION:
;  APPLICANT:  Davis, Heather L.
;  APPLICANT:  Krieg, Arthur M.
;  APPLICANT:  Schorr, Joachim
;  APPLICANT:  Wu, Tong
;  TITLE OF INVENTION:  Vectors and Methods for Immunization or
;  TITLE OF INVENTION:  Therapeutic Protocols
;  FILE REFERENCE:  C1039/7009
;  CURRENT APPLICATION NUMBER: US/09/082,649B
;  CURRENT FILING DATE:  1998-05-20
;  PRIOR APPLICATION NUMBER:  US 60/047,233
;  PRIOR FILING DATE:  1997-05-20
;  PRIOR APPLICATION NUMBER:  US 60/047,209
;  PRIOR FILING DATE:  1997-05-20
;  NUMBER OF SEQ ID NOS:  85
;  SOFTWARE:  FastSEQ for Windows Version 3.0
; SEQ ID NO 68
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: synthetic oligonucleotide
;   NAME/KEY: misc_feature
;   LOCATION: (0)...(0)
;   OTHER INFORMATION: Has a phosphodiester backbone.
US-09-082-649B-68

  Query Match             100.0%;  Score 20;  DB 4;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 0.2;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGACGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATGACGTTCCTGATGCT 20


RESULT 12
US-09-082-649B-79
; Sequence 79, Application US/09082649B
; Patent No. 6339068
; GENERAL INFORMATION:
;  APPLICANT:  Davis, Heather L.
;  APPLICANT:  Krieg, Arthur M.
;  APPLICANT:  Schorr, Joachim
;  APPLICANT:  Wu, Tong
;  TITLE OF INVENTION:  Vectors and Methods for Immunization or
;  TITLE OF INVENTION:  Therapeutic Protocols
;  FILE REFERENCE:  C1039/7009
;  CURRENT APPLICATION NUMBER: US/09/082,649B
;  CURRENT FILING DATE:  1998-05-20
;  PRIOR APPLICATION NUMBER:  US 60/047,233
;  PRIOR FILING DATE:  1997-05-20
;  PRIOR APPLICATION NUMBER:  US 60/047,209
;  PRIOR FILING DATE:  1997-05-20
;  NUMBER OF SEQ ID NOS:  85
;  SOFTWARE:  FastSEQ for Windows Version 3.0
; SEQ ID NO 79
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: synthetic oligonucleotide
US-09-082-649B-79

  Query Match             100.0%;  Score 20;  DB 4;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 0.2;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGACGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATGACGTTCCTGATGCT 20


RESULT 13
US-09-325-193A-19
; Sequence 19, Application US/09325193A
; Patent No. 6406705
; GENERAL INFORMATION:
;  APPLICANT:  Davis, Heather L.
;  APPLICANT:  Schorr, Joachim
;  APPLICANT:  Krieg, Arthur M.
;  TITLE OF INVENTION:  Use of Nucleic Acids Containing
;  TITLE OF INVENTION:  Unmethylated CpG Dinucleotide as an Adjuvant
;  FILE REFERENCE:  C1039/7025/HCL
;  CURRENT APPLICATION NUMBER: US/09/325,193A
;  CURRENT FILING DATE:  1999-06-03
;  PRIOR APPLICATION NUMBER:  US 09/154,614
;  PRIOR FILING DATE:  1998-09-16
;  PRIOR APPLICATION NUMBER:  PCT/US98/04703
;  PRIOR FILING DATE:  1998-03-10
;  PRIOR APPLICATION NUMBER:  US 60/040,376
;  PRIOR FILING DATE:  1997-03-10
;  NUMBER OF SEQ ID NOS:  98
;  SOFTWARE:  FastSEQ for Windows Version 3.0
; SEQ ID NO 19
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; LENGTH: 20
; TYPE: DNA
; ORGANISM: Artificial Sequence
; FEATURE:
; OTHER INFORMATION: Synthetic Oligonucleotide
US-09-325-193A-19

Query Match 100.0%; Score 20; DB 4; Length 20;
Best Local Similarity 100.0%; Pred. No. 0.2;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 TCCATGACGTTCCTGATGCT 20
||||||||||||||||||||
Db 1 TCCATGACGTTCCTGATGCT 20

RESULT 14
US-09-191-170-24
; Sequence 24, Application US/09191170
; Patent No. 6429199
; GENERAL INFORMATION:
; APPLICANT: Krieg, Arthur M.
; APPLICANT: Hartmann, Gunther
; TITLE OF INVENTION: Immunostimulatory Nucleic Acid Molecules
; TITLE OF INVENTION: for Activating Dendritic Cells
; FILE REFERENCE: C1039/7017
; CURRENT APPLICATION NUMBER: US/09/191,170
; CURRENT FILING DATE: 1998-11-13
; EARLIER APPLICATION NUMBER: US 08/960,774
; EARLIER FILING DATE: 1997-10-30
; EARLIER APPLICATION NUMBER: US 08/738,652
; EARLIER FILING DATE: 1996-10-30
; EARLIER APPLICATION NUMBER: US 08/386,063
; EARLIER FILING DATE: 1995-02-07
; EARLIER APPLICATION NUMBER: US 08/276,358
; EARLIER FILING DATE: 1994-07-15
; NUMBER OF SEQ ID NOS: 99
; SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 24
; LENGTH: 20
; TYPE: DNA
; ORGANISM: Artificial Sequence
; FEATURE:
; OTHER INFORMATION: synthetic oligonucleotide
US-09-191-170-24

Query Match 100.0%; Score 20; DB 4; Length 20;
Best Local Similarity 100.0%; Pred. No. 0.2;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 TCCATGACGTTCCTGATGCT 20
||||||||||||||||||||
Db 1 TCCATGACGTTCCTGATGCT 20

RESULT 15
US-09-171-425-5
; Sequence 5, Application US/09171425A
; Patent No. 6465438
; GENERAL INFORMATION:
; APPLICANT: Schorr, Joachim
; APPLICANT: Baker, Henry J.
; APPLICANT: Smith, Bruce F.
; TITLE OF INVENTION: NUCLEIC ACID VACCINATION FOR PARVOVIRAL INFECTIONS
; FILE REFERENCE: 08909/003001
; CURRENT APPLICATION NUMBER: US/09/171,425A
; CURRENT FILING DATE: 1998-10-19
; EARLIER APPLICATION NUMBER: PCT/EP97/01943
; EARLIER FILING DATE: 1996-04-19
; NUMBER OF SEQ ID NOS: 14
; SOFTWARE: FastSEQ for Windows Version 4.0
; SEQ ID NO 5
; LENGTH: 20
; TYPE: DNA
; ORGANISM: Artificial Sequence
; FEATURE:
; OTHER INFORMATION: Synthetically generated oligonucleotides
US-09-171-425-5

Query Match 100.0%; Score 20; DB 4; Length 20;
Best Local Similarity 100.0%; Pred. No. 0.2;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 TCCATGACGTTCCTGATGCT 20
||||||||||||||||||||
Db 1 TCCATGACGTTCCTGATGCT 20

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Job time : 41.5 secs

GenCore version 5.1.4_p5_4578


OM nucleic - nucleic search, using sw model

Run on: March 1, 2003, 21:03:21 ; Search time 44.25 Seconds
(without alignments)
281.862 Million cell updates/sec

Title: US-09-818-918-44
Perfect score: 20
Sequence: 1 tccatgacgttcctgatgct 20

Scoring table: IDENTITY_NUC
Gapop 10.0 , Gapext 1.0

Searched: 460893 seqs, 311809382 residues

Total number of hits satisfying chosen parameters: 921786

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : Published_Applications_NA:*
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3: /cgn2_6/ptodata/2/pubpna/US06_NEW_PUB.seq:*
4: /cgn2_6/ptodata/2/pubpna/US06_PUBCOMB.seq:*
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13: /cgn2_6/ptodata/2/pubpna/US60_NEW_PUB.seq:*
14: /cgn2_6/ptodata/2/pubpna/US60_PUBCOMB.seq:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

| Result No. | Score | % Query Match | Length | DB | ID | Description |
|---|---|---|---|---|---|---|
| 1 | 20 | 100.0 | 20 | 9 | US-09-800-266A-19 | Sequence 19, Appl |
| 2 | 20 | 100.0 | 20 | 9 | US-09-846-091-4 | Sequence 4, Appli |
| 3 | 20 | 100.0 | 20 | 9 | US-09-895-007A-19 | Sequence 19, Appl |
| 4 | 20 | 100.0 | 20 | 9 | US-10-023-909A-19 | Sequence 19, Appl |
| 5 | 20 | 100.0 | 20 | 9 | US-09-920-313-19 | Sequence 19, Appl |
| 6 | 20 | 100.0 | 20 | 9 | US-10-205-150-7 | Sequence 7, Appli |
| 7 | 20 | 100.0 | 20 | 9 | US-10-011-635A-1 | Sequence 1, Appli |
| 8 | 20 | 100.0 | 20 | 9 | US-09-415-142-25 | Sequence 25, Appl |
| 9 | 20 | 100.0 | 20 | 9 | US-09-888-326-127 | Sequence 127, App |
| 10 | 20 | 100.0 | 20 | 9 | US-09-888-326-566 | Sequence 566, App |
| 11 | 20 | 100.0 | 20 | 9 | US-09-888-326-567 | Sequence 567, App |
| 12 | 20 | 100.0 | 20 | 10 | US-09-791-500-7 | Sequence 7, Appli |
| 13 | 20 | 100.0 | 20 | 10 | US-09-824-468-24 | Sequence 24, Appl |
| 14 | 20 | 100.0 | 29 | 9 | US-09-888-326-129 | Sequence 129, App |
| 15 | 19 | 95.0 | 19 | 10 | US-09-965-116A-69 | Sequence 69, Appl |
| 16 | 19 | 95.0 | 19 | 10 | US-09-965-116A-70 | Sequence 70, Appl |
| 17 | 19 | 95.0 | 19 | 10 | US-09-965-116A-71 | Sequence 71, Appl |
| 18 | 19 | 95.0 | 20 | 9 | US-09-888-326-572 | Sequence 572, App |
| 19 | 19 | 95.0 | 20 | 9 | US-09-888-326-582 | Sequence 582, App |
| 20 | 18.4 | 92.0 | 20 | 9 | US-09-800-266A-38 | Sequence 38, Appl |
| 21 | 18.4 | 92.0 | 20 | 9 | US-09-800-266A-42 | Sequence 42, Appl |
| 22 | 18.4 | 92.0 | 20 | 9 | US-09-800-266A-43 | Sequence 43, Appl |
| 23 | 18.4 | 92.0 | 20 | 9 | US-09-800-266A-44 | Sequence 44, Appl |
| 24 | 18.4 | 92.0 | 20 | 9 | US-09-800-266A-49 | Sequence 49, Appl |
| 25 | 18.4 | 92.0 | 20 | 9 | US-09-895-007A-38 | Sequence 38, Appl |
| 26 | 18.4 | 92.0 | 20 | 9 | US-09-895-007A-42 | Sequence 42, Appl |
| 27 | 18.4 | 92.0 | 20 | 9 | US-09-895-007A-43 | Sequence 43, Appl |
| 28 | 18.4 | 92.0 | 20 | 9 | US-09-895-007A-44 | Sequence 44, Appl |
| 29 | 18.4 | 92.0 | 20 | 9 | US-09-895-007A-49 | Sequence 49, Appl |
| 30 | 18.4 | 92.0 | 20 | 9 | US-10-023-909A-38 | Sequence 38, Appl |
| 31 | 18.4 | 92.0 | 20 | 9 | US-10-023-909A-42 | Sequence 42, Appl |
| 32 | 18.4 | 92.0 | 20 | 9 | US-10-023-909A-43 | Sequence 43, Appl |
| 33 | 18.4 | 92.0 | 20 | 9 | US-10-023-909A-44 | Sequence 44, Appl |
| 34 | 18.4 | 92.0 | 20 | 9 | US-10-023-909A-49 | Sequence 49, Appl |
| 35 | 18.4 | 92.0 | 20 | 9 | US-10-074-956-2 | Sequence 2, Appli |
| 36 | 18.4 | 92.0 | 20 | 9 | US-09-920-313-38 | Sequence 38, Appl |
| 37 | 18.4 | 92.0 | 20 | 9 | US-09-920-313-42 | Sequence 42, Appl |
| 38 | 18.4 | 92.0 | 20 | 9 | US-09-920-313-43 | Sequence 43, Appl |
| 39 | 18.4 | 92.0 | 20 | 9 | US-09-920-313-44 | Sequence 44, Appl |
| 40 | 18.4 | 92.0 | 20 | 9 | US-09-920-313-49 | Sequence 49, Appl |
| c 41 | 18.4 | 92.0 | 20 | 9 | US-09-888-326-62 | Sequence 62, Appl |
| 42 | 18.4 | 92.0 | 20 | 9 | US-09-888-326-525 | Sequence 525, App |
| 43 | 18.4 | 92.0 | 20 | 9 | US-09-888-326-545 | Sequence 545, App |
| 44 | 18.4 | 92.0 | 20 | 9 | US-09-888-326-551 | Sequence 551, App |
| 45 | 18.4 | 92.0 | 20 | 9 | US-09-888-326-555 | Sequence 555, App |

ALIGNMENTS

RESULT 1
US-09-800-266A-19
; Sequence 19, Application US/09800266A
; Patent No. US20020156033A1
; GENERAL INFORMATION:
; APPLICANT: Bratzler, Robert L.
; APPLICANT: Petersen, Deanna M.
; TITLE OF INVENTION: Immunostimulatory Nucleic Acids and
; TITLE OF INVENTION: Cancer Medicament Combination Therapy for the Treatment of
; TITLE OF INVENTION: Cancer
; FILE REFERENCE: C1037/7017(HCL/MAT)
; CURRENT APPLICATION NUMBER: US/09/800,266A
; CURRENT FILING DATE: 2001-03-05
; PRIOR APPLICATION NUMBER: US 60/187,214
; PRIOR FILING DATE: 2000-03-03
; NUMBER OF SEQ ID NOS: 146
; SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 19
; LENGTH: 20
; TYPE: DNA
; ORGANISM: Artificial Sequence
; FEATURE:
; OTHER INFORMATION: Synthetic Sequence
US-09-800-266A-19

Query Match 100.0%; Score 20; DB 9; Length 20;
Best Local Similarity 100.0%; Pred. No. 0.43;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 TCCATGACGTTCCTGATGCT 20
||||||||||||||||||||
Db 1 TCCATGACGTTCCTGATGCT 20

RESULT 2
US-09-846-091-4
; Sequence 4, Application US/09846091
; Patent No. US20020165176A1
; GENERAL INFORMATION:
; APPLICANT: HAYNES, Joel R.
; APPLICANT: MACKLIN, Michael D.
; APPLICANT: PAYNE, Lendon G.

```
;  TITLE OF INVENTION: NUCLEIC ACID IMMUNIZATION
;  FILE REFERENCE: APF40
;  CURRENT APPLICATION NUMBER: US/09/846,091
;  CURRENT FILING DATE:  2001-04-30
;  PRIOR APPLICATION NUMBER: US/09/561,951
;  PRIOR FILING DATE: 2000-05-01
;  NUMBER OF SEQ ID NOS: 11
;  SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 4
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Description of Artificial Sequence: Synthetic
;   OTHER INFORMATION: Construct
US-09-846-091-4

  Query Match             100.0%;  Score 20;  DB 9;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 0.43;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGACGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATGACGTTCCTGATGCT 20


RESULT 3
US-09-895-007A-19
; Sequence 19, Application US/09895007A
; Patent No. US20020165178A1
; GENERAL INFORMATION:
;  APPLICANT: Schetter, Christian
;  APPLICANT:  Bratzler, Robert L.
;  APPLICANT:  Petersen, Deanna M.
;  TITLE OF INVENTION: IMMUNOSTIMULATORY NUCLEIC ACIDS FOR THE
;  TITLE OF INVENTION:  TREATMENT OF ANEMIA, THROMBOCYTOPENIA, AND NEUTROPENIA
;  FILE REFERENCE: C1041/7014 (AWS)
;  CURRENT APPLICATION NUMBER: US/09/895,007A
;  CURRENT FILING DATE:  2001-06-28
;  PRIOR APPLICATION NUMBER: US 60/214,368
;  PRIOR FILING DATE: 2000-06-28
;  NUMBER OF SEQ ID NOS: 133
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 19
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic oligonucleotide
US-09-895-007A-19

  Query Match             100.0%;  Score 20;  DB 9;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 0.43;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGACGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATGACGTTCCTGATGCT 20


RESULT 4
US-10-023-909A-19
; Sequence 19, Application US/10023909A
; Patent No. US20020164341A1
; GENERAL INFORMATION:
;  APPLICANT: Davis, Heather L.
;  APPLICANT:  Schorr, Joachim
;  APPLICANT:  Krieg, Arthur M.
;  TITLE OF INVENTION: Use of Nucleic Acids Containing
;  TITLE OF INVENTION:  Unmethylated CpG Dinucleotide as an Adjuvant
;  FILE REFERENCE: C1039/7058/HCL
;  CURRENT APPLICATION NUMBER: US/10/023,909A
;  CURRENT FILING DATE:  2001-12-18
;  PRIOR APPLICATION NUMBER: US 09/325,193
;  PRIOR FILING DATE: 1999-06-03
;  PRIOR APPLICATION NUMBER: US 09/154,614
;  PRIOR FILING DATE: 1998-09-16
;  PRIOR APPLICATION NUMBER: PCT/US98/04703
;  PRIOR FILING DATE: 1998-03-10
;  PRIOR APPLICATION NUMBER: US 60/040,376
;  PRIOR FILING DATE: 1997-03-10
;  NUMBER OF SEQ ID NOS: 98
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 19
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic Oligonucleotide
US-10-023-909A-19

  Query Match             100.0%;  Score 20;  DB 9;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 0.43;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGACGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATGACGTTCCTGATGCT 20


RESULT 5
US-09-920-313-19
; Sequence 19, Application US/09920313
; Publication No. US20020198165A1
; GENERAL INFORMATION:
;  APPLICANT: Bratzler, Robert L.
;  APPLICANT:  Petersen, Deanna M.
;  TITLE OF INVENTION: Nucleic Acids for the Prevention and
;  TITLE OF INVENTION:  Treatment of Gastric Ulcers
;  FILE REFERENCE: C1037/7019 (HCL/MAT)
;  CURRENT APPLICATION NUMBER: US/09/920,313
;  CURRENT FILING DATE:  2001-08-01
;  PRIOR APPLICATION NUMBER: US 60/222,248
;  PRIOR FILING DATE: 2001-08-08
;  NUMBER OF SEQ ID NOS: 148
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 19
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic Sequence
US-09-920-313-19

  Query Match             100.0%;  Score 20;  DB 9;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 0.43;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGACGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATGACGTTCCTGATGCT 20


RESULT 6
US-10-205-150-7
; Sequence 7, Application US/10205150
; Publication No. US20020197269A1
; GENERAL INFORMATION:
;  APPLICANT: LINGNAU, KAREN ET AL.
;  TITLE OF INVENTION: PHARMACEUTICAL COMPOSITION FOR IMMUNOMODULATION AND PREPARATIO
;  TITLE OF INVENTION:  OF VACCINES COMPRISING AN ANTIGEN AND AN IMMUNOGENIC OLIGODEO
;  TITLE OF INVENTION:  AND A POLYCATIONIC POLYMER AS ADJUVANTS
;  FILE REFERENCE: SONN:018US
;  CURRENT APPLICATION NUMBER: US/10/205,150
;  CURRENT FILING DATE:  2002-07-25
;  PRIOR APPLICATION NUMBER: PCT/EP01/00087
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;  PRIOR FILING DATE: 2001-01-05
;  NUMBER OF SEQ ID NOS: 9
;  SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 7
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Description of Artificial Sequence:  Synthetic
;   OTHER INFORMATION: Primer
US-10-205-150-7

  Query Match             100.0%;  Score 20;  DB 9;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 0.43;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGACGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATGACGTTCCTGATGCT 20


RESULT 7
US-10-011-635A-1
; Sequence 1, Application US/10011635A
; Publication No. US20030003579A1
; GENERAL INFORMATION:
;  APPLICANT: Kadowaki, No. US20030003579A1imitsu
;  APPLICANT:  Liu, Yong-Jun
;  TITLE OF INVENTION: Dendritic cells; Methods
;  FILE REFERENCE: DX01206
;  CURRENT APPLICATION NUMBER: US/10/011,635A
;  CURRENT FILING DATE:  2001-10-22
;  PRIOR APPLICATION NUMBER: 60/243,232
;  PRIOR FILING DATE: 2000-10-24
;  NUMBER OF SEQ ID NOS: 6
;  SOFTWARE: PatentIn version 3.1
; SEQ ID NO 1
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Sparwasser, et al. (1998) Eur. J. Immunol. 28:2045-2054.
;   FEATURE:
;   NAME/KEY: misc_feature
;   LOCATION: (1)..(20)
;   OTHER INFORMATION: From Sparwasser, et al. (1998).
;   FEATURE:
;   NAME/KEY: misc_feature
;   LOCATION: (1)..(20)
;   OTHER INFORMATION: Sparwasser, et al. (1998) Eur. J. Immunol. 28:2045-2054.
US-10-011-635A-1

  Query Match             100.0%;  Score 20;  DB 9;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 0.43;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGACGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATGACGTTCCTGATGCT 20


RESULT 8
US-09-415-142-25
; Sequence 25, Application US/09415142
; Publication No. US20030026782A1
; GENERAL INFORMATION:
;  APPLICANT: Krieg, Arthur M.
;  APPLICANT:  Klinman, Dennis
;  APPLICANT:  Steinberg, Alfred D.
;  TITLE OF INVENTION: IMMUNOMODULATORY OLIGONUCLEOTIDES
;  FILE REFERENCE: C1039/7029
;  CURRENT APPLICATION NUMBER: US/09/415,142
;  CURRENT FILING DATE:  1999-10-09
;  PRIOR APPLICATION NUMBER: US 08/386,063
;  PRIOR FILING DATE: 1995-02-07
;  NUMBER OF SEQ ID NOS: 27
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 25
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic oligonucleotide
US-09-415-142-25

  Query Match             100.0%;  Score 20;  DB 9;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 0.43;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGACGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATGACGTTCCTGATGCT 20


RESULT 9
US-09-888-326-127
; Sequence 127, Application US/09888326
; Publication No. US20030026801A1
; GENERAL INFORMATION:
;  APPLICANT: Weiner, George
;  APPLICANT:  Hartmann, Gunther
;  TITLE OF INVENTION: Methods for Enhancing Antibody-Induced
;  TITLE OF INVENTION:  Cell Lysis and Treating Cancer
;  FILE REFERENCE: C1039/7052 (AWS)
;  CURRENT APPLICATION NUMBER: US/09/888,326
;  CURRENT FILING DATE:  2001-06-22
;  PRIOR APPLICATION NUMBER: US 60/213,346
;  PRIOR FILING DATE: 2000-06-22
;  NUMBER OF SEQ ID NOS: 848
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 127
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic oligonucleotide
;   NAME/KEY: misc_feature
;   LOCATION: (0)...(0)
;   OTHER INFORMATION: phosphodiester backbone
;   NAME/KEY: misc_feature
;   LOCATION: (1)...(1)
;   OTHER INFORMATION: biotinylated at 5' end
US-09-888-326-127

  Query Match             100.0%;  Score 20;  DB 9;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 0.43;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGACGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATGACGTTCCTGATGCT 20


RESULT 10
US-09-888-326-566
; Sequence 566, Application US/09888326
; Publication No. US20030026801A1
; GENERAL INFORMATION:
;  APPLICANT: Weiner, George
;  APPLICANT:  Hartmann, Gunther
;  TITLE OF INVENTION: Methods for Enhancing Antibody-Induced
;  TITLE OF INVENTION:  Cell Lysis and Treating Cancer
;  FILE REFERENCE: C1039/7052 (AWS)
;  CURRENT APPLICATION NUMBER: US/09/888,326
;  CURRENT FILING DATE:  2001-06-22
;  PRIOR APPLICATION NUMBER: US 60/213,346
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;  PRIOR FILING DATE: 2000-06-22
;  NUMBER OF SEQ ID NOS: 848
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 566
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic oligonucleotide
;   NAME/KEY: misc_feature
;   LOCATION: (0)...(0)
;   OTHER INFORMATION: phosphodiester backbone
US-09-888-326-566

  Query Match             100.0%;  Score 20;  DB 9;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 0.43;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGACGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATGACGTTCCTGATGCT 20


RESULT 11
US-09-888-326-567
; Sequence 567, Application US/09888326
; Publication No. US20030026801A1
; GENERAL INFORMATION:
;  APPLICANT: Weiner, George
;  APPLICANT:  Hartmann, Gunther
;  TITLE OF INVENTION: Methods for Enhancing Antibody-Induced
;  TITLE OF INVENTION:  Cell Lysis and Treating Cancer
;  FILE REFERENCE: C1039/7052 (AWS)
;  CURRENT APPLICATION NUMBER: US/09/888,326
;  CURRENT FILING DATE:  2001-06-22
;  PRIOR APPLICATION NUMBER: US 60/213,346
;  PRIOR FILING DATE: 2000-06-22
;  NUMBER OF SEQ ID NOS: 848
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 567
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic oligonucleotide
;   NAME/KEY: misc_feature
;   LOCATION: (0)...(0)
;   OTHER INFORMATION: phosphorothioate backbone
US-09-888-326-567

  Query Match             100.0%;  Score 20;  DB 9;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 0.43;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGACGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATGACGTTCCTGATGCT 20


RESULT 12
US-09-791-500-7
; Sequence 7, Application US/09791500
; Patent No. US20020042387A1
; GENERAL INFORMATION:
;  APPLICANT: Raz, Eyal
;  APPLICANT:  Rachmilewitz, Daniel
;  TITLE OF INVENTION: Method for Treating Inflammatory Bowel
;  TITLE OF INVENTION:  Disease and Other Forms of Gastrointestinal Inflammation.
;  FILE REFERENCE: 6510-202US1
;  CURRENT APPLICATION NUMBER: US/09/791,500
;  CURRENT FILING DATE:  2001-02-22
;  NUMBER OF SEQ ID NOS: 39
;  SOFTWARE: FastSEQ for Windows Version 4.0
; SEQ ID NO 7
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: synthetic polynucleotide sequence
US-09-791-500-7

  Query Match             100.0%;  Score 20;  DB 10;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 0.43;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGACGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATGACGTTCCTGATGCT 20


RESULT 13
US-09-824-468-24
; Sequence 24, Application US/09824468
; Patent No. US20020064515A1
; GENERAL INFORMATION:
;  APPLICANT: Krieg, Arthur M.
;  APPLICANT:  Weiner, George
;  TITLE OF INVENTION: Methods and Products for Stimulating the
;  TITLE OF INVENTION:  Immune System Using Immunotherapeutic Oligonucleotides and
;  TITLE OF INVENTION:  Cytokines
;  FILE REFERENCE: C1039/7026/HCL
;  CURRENT APPLICATION NUMBER: US/09/824,468
;  CURRENT FILING DATE:  2001-04-02
;  PRIOR APPLICATION NUMBER: 09/286,098
;  PRIOR FILING DATE: 1999-04-02
;  NUMBER OF SEQ ID NOS: 105
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 24
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic Sequence
US-09-824-468-24

  Query Match             100.0%;  Score 20;  DB 10;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 0.43;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGACGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATGACGTTCCTGATGCT 20


RESULT 14
US-09-888-326-129
; Sequence 129, Application US/09888326
; Publication No. US20030026801A1
; GENERAL INFORMATION:
;  APPLICANT: Weiner, George
;  APPLICANT:  Hartmann, Gunther
;  TITLE OF INVENTION: Methods for Enhancing Antibody-Induced
;  TITLE OF INVENTION:  Cell Lysis and Treating Cancer
;  FILE REFERENCE: C1039/7052 (AWS)
;  CURRENT APPLICATION NUMBER: US/09/888,326
;  CURRENT FILING DATE:  2001-06-22
;  PRIOR APPLICATION NUMBER: US 60/213,346
;  PRIOR FILING DATE: 2000-06-22
;  NUMBER OF SEQ ID NOS: 848
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 129
;   LENGTH: 29
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic oligonucleotide
```

; NAME/KEY: misc_feature
; LOCATION: (0)...(0)
; OTHER INFORMATION: chimeric phosphorothioate/phosphodiester backbone
; OTHER INFORMATION: with phosphodiester on 5' end
; NAME/KEY: misc_feature
; LOCATION: (1)...(1)
; OTHER INFORMATION: biotinylated at 5' end
US-09-888-326-129

Query Match 100.0%; Score 20; DB 9; Length 29;
Best Local Similarity 100.0%; Pred. No. 0.45;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 TCCATGACGTTCCTGATGCT 20
||||||||||||||||||||
Db 6 TCCATGACGTTCCTGATGCT 25

RESULT 15
US-09-965-116A-69
; Sequence 69, Application US/09965116A
; Patent No. US20020137714A1
; GENERAL INFORMATION:
; APPLICANT: Kandimalla, Ekambar R.
; APPLICANT: Zhao, Qiuyan
; APPLICANT: Yu, Dong
; APPLICANT: Agrawal, Sudhir
; TITLE OF INVENTION: Modulation of Immunostimulatory Activity of Immunostimulatory
; TITLE OF INVENTION: Modified oligodeoxynucleotide phosphorothioate Analogs by
; TITLE OF INVENTION: Positional Chemical Changes
; FILE REFERENCE: HYZ-479CP (47508.577)
; CURRENT APPLICATION NUMBER: US/09/965,116A
; CURRENT FILING DATE: 2002-03-08
; PRIOR APPLICATION NUMBER: US 09/712,898
; PRIOR FILING DATE: 2000-11-15
; PRIOR APPLICATION NUMBER: US 60/235,452
; PRIOR FILING DATE: 2000-09-26
; PRIOR APPLICATION NUMBER: US 60/235,453
; PRIOR FILING DATE: 2000-09-26
; NUMBER OF SEQ ID NOS: 112
; SOFTWARE: FastSEQ for Windows Version 4.0
; SEQ ID NO 69
; LENGTH: 19
; TYPE: DNA
; ORGANISM: Artificial Sequence
; FEATURE:
; OTHER INFORMATION: modified linkage of oligodeoxynucleotide phosphorothioate
US-09-965-116A-69

Query Match 95.0%; Score 19; DB 10; Length 19;
Best Local Similarity 100.0%; Pred. No. 1.4;
Matches 19; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 TCCATGACGTTCCTGATGC 19
|||||||||||||||||||
Db 1 TCCATGACGTTCCTGATGC 19

Search completed: March 1, 2003, 22:56:09
Job time : 44.25 secs

OM nucleic - nucleic search, using sw model

Run on: March 1, 2003, 21:36:01 ; Search time 358.25 Seconds
(without alignments)
1624.720 Million cell updates/sec

Title: US-09-818-918-44
Perfect score: 20
Sequence: 1 tccatgacgttcctgatgct 20

Scoring table: IDENTITY_NUC
Gapop 10.0 , Gapext 1.0

Searched: 2054640 seqs, 14551402878 residues

Total number of hits satisfying chosen parameters: 995600

Minimum DB seq length: 0
Maximum DB seq length: 100

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : GenEmbl:*
1: gb_ba:*
2: gb_htg:*
3: gb_in:*
4: gb_om:*
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8: gb_pl:*
9: gb_pr:*
10: gb_ro:*
11: gb_sts:*
12: gb_sy:*
13: gb_un:*
14: gb_vi:*
15: em_ba:*
16: em_fun:*
17: em_hum:*
18: em_in:*
19: em_mu:*
20: em_om:*
21: em_or:*
22: em_ov:*
23: em_pat:*
24: em_ph:*
25: em_pl:*
26: em_ro:*
27: em_sts:*
28: em_un:*
29: em_vi:*
30: em_htg_hum:*
31: em_htg_inv:*
32: em_htg_other:*
33: em_htg_mus:*
34: em_htg_pln:*
35: em_htg_rod:*
36: em_htg_mam:*
37: em_htg_vrt:*
38: em_sy:*
39: em_htgo_hum:*
40: em_htgo_mus:*
41: em_htgo_other:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

| Result No. | Score | % Query Match | Length | DB | ID | Description |
|---|---|---|---|---|---|---|
| 1 | 20 | 100.0 | 20 | 6 | A89782 | A89782 Sequence 4 |
| 2 | 20 | 100.0 | 20 | 6 | A89783 | A89783 Sequence 5 |
| 3 | 20 | 100.0 | 20 | 6 | A90869 | A90869 Sequence 4 |
| 4 | 20 | 100.0 | 20 | 6 | A90870 | A90870 Sequence 5 |
| 5 | 20 | 100.0 | 20 | 6 | A93512 | A93512 Sequence 5 |
| 6 | 20 | 100.0 | 20 | 6 | A93521 | A93521 Sequence 14 |
| 7 | 20 | 100.0 | 20 | 6 | AR078394 | AR078394 Sequence |
| 8 | 20 | 100.0 | 20 | 6 | AR096710 | AR096710 Sequence |
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| 13 | 20 | 100.0 | 20 | 6 | AR140495 | AR140495 Sequence |
| 14 | 20 | 100.0 | 20 | 6 | AR146312 | AR146312 Sequence |
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| 18 | 20 | 100.0 | 20 | 6 | AX023425 | AX023425 Sequence |
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| 25 | 20 | 100.0 | 20 | 6 | AX166344 | AX166344 Sequence |
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DEFINITION Sequence 4 from Patent WO9832462.
ACCESSION A89782
VERSION A89782.1 GI:6738296
KEYWORDS .
SOURCE unidentified.
ORGANISM unidentified
unclassified.
REFERENCE 1 (bases 1 to 20)
AUTHORS Lipford,G.B. and Heeg,K.
TITLE PHARMACEUTICAL COMPOSITIONS COMPRISING A POLYNUCLEOTIDE AND OPTIONALLY AN ANTIGEN ESPECIALLY FOR VACCINATION
JOURNAL Patent: WO 9832462-A 4 30-JUL-1998;

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            LIPFORD GRAYSON B (DE); HEEG KLAUS (DE)
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ACCESSION   A89783
VERSION     A89783.1  GI:6738297
KEYWORDS    .
SOURCE      unidentified.
  ORGANISM  unidentified
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REFERENCE   1  (bases 1 to 20)
  AUTHORS   Lipford,G.B. and Heeg,K.
  TITLE     PHARMACEUTICAL COMPOSITIONS COMPRISING A POLYNUCLEOTIDE AND
            OPTIONALLY AN ANTIGEN ESPECIALLY FOR VACCINATION
  JOURNAL   Patent: WO 9832462-A 5 30-JUL-1998;
            LIPFORD GRAYSON B (DE); HEEG KLAUS (DE)
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DEFINITION  Sequence 4 from Patent EP0855184.
ACCESSION   A90869
VERSION     A90869.1  GI:6739263
KEYWORDS    .
SOURCE      unidentified.
  ORGANISM  unidentified
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REFERENCE   1  (bases 1 to 20)
  AUTHORS   Heeg,K.P. and Lipford,G.B.
  TITLE     Pharmaceutical composition comprising a polynucleotide and an
            antigen especially for vaccination
  JOURNAL   Patent: EP 0855184-A 4 29-JUL-1998;
            HEEG KLAUS PROF DR (DE); LIPFORD GRAYSON B DR (DE)
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DEFINITION  Sequence 5 from Patent EP0855184.
ACCESSION   A90870
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  ORGANISM  unidentified
            unclassified.
REFERENCE   1  (bases 1 to 20)
  AUTHORS   Heeg,K.P. and Lipford,G.B.
  TITLE     Pharmaceutical composition comprising a polynucleotide and an
            antigen especially for vaccination
  JOURNAL   Patent: EP 0855184-A 5 29-JUL-1998;
            HEEG KLAUS PROF DR (DE); LIPFORD GRAYSON B DR (DE)
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VERSION     A93512.1  GI:6741731
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REFERENCE   1  (bases 1 to 20)
  AUTHORS   Colpan,M. and Schorr,J.
  TITLE     NUCLEIC ACID VACCINATION FOR PARVOVIRAL INFECTIONS
  JOURNAL   Patent: WO 9740163-A 5 30-OCT-1997;
            COLPAN METIN (DE); SCHORR JOACHIM (DE)
FEATURES             Location/Qualifiers
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ACCESSION   A93521
VERSION     A93521.1  GI:6741738
KEYWORDS    .
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  ORGANISM  unidentified
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REFERENCE   1  (bases 1 to 20)
  AUTHORS   Colpan,M. and Schorr,J.
  TITLE     NUCLEIC ACID VACCINATION FOR PARVOVIRAL INFECTIONS
  JOURNAL   Patent: WO 9740163-A 14 30-OCT-1997;
            COLPAN METIN (DE); SCHORR JOACHIM (DE)
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DEFINITION  Sequence 11 from patent US 5962636.
ACCESSION   AR078394
VERSION     AR078394.1  GI:10005140
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SOURCE      Unknown.
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REFERENCE   1  (bases 1 to 20)
  AUTHORS   Bachmaier,K., Hessel,A.John., Neu,N. and Penninger,J.Martin.
  TITLE     Peptides capable of modulating inflammatory heart disease
  JOURNAL   Patent: US 5962636-A 11 05-OCT-1999;
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LOCUS       AR096710                  20 bp    DNA     linear   PAT 08-SEP-2000
DEFINITION  Sequence 25 from patent US 6008200.
ACCESSION   AR096710
VERSION     AR096710.1  GI:10025745
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SOURCE      Unknown.
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REFERENCE   1  (bases 1 to 20)
  AUTHORS   Krieg,A.M.
  TITLE     Immunomodulatory oligonucleotides
  JOURNAL   Patent: US 6008200-A 25 28-DEC-1999;
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ACCESSION   AR135054
VERSION     AR135054.1  GI:14123959
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REFERENCE   1  (bases 1 to 20)
  AUTHORS   Krieg,A.M., Klinman,D. and Steinberg,A.D.
  TITLE     Immunomodulatory oligonucleotides
  JOURNAL   Patent: US 6194388-A 25 27-FEB-2001;
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DEFINITION  Sequence 7 from patent US 6207646.
ACCESSION   AR140448
VERSION     AR140448.1  GI:14482944
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SOURCE      Unknown.
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REFERENCE   1  (bases 1 to 20)
  AUTHORS   Krieg,A.M., Kline,J., Klinman,D. and Steinberg,A.D.
  TITLE     Immunostimulatory nucleic acid molecules
  JOURNAL   Patent: US 6207646-A 7 27-MAR-2001;
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ACCESSION   AR140476
VERSION     AR140476.1  GI:14482972
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SOURCE      Unknown.
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REFERENCE   1  (bases 1 to 20)
  AUTHORS   Krieg,A.M., Kline,J., Klinman,D. and Steinberg,A.D.
  TITLE     Immunostimulatory nucleic acid molecules
  JOURNAL   Patent: US 6207646-A 35 27-MAR-2001;
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ACCESSION   AR140485
VERSION     AR140485.1  GI:14482981
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REFERENCE   1  (bases 1 to 20)
  AUTHORS   Krieg,A.M., Kline,J., Klinman,D. and Steinberg,A.D.
  TITLE     Immunostimulatory nucleic acid molecules
  JOURNAL   Patent: US 6207646-A 44 27-MAR-2001;
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REFERENCE   1  (bases 1 to 20)
  AUTHORS   Krieg,A.M., Kline,J., Klinman,D. and Steinberg,A.D.
  TITLE     Immunostimulatory nucleic acid molecules
  JOURNAL   Patent: US 6207646-A 54 27-MAR-2001;
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ACCESSION   AR146312
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  AUTHORS   Krieg,A.M. and Weiner,G.
  TITLE     Methods and products for stimulating the immune system using
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  JOURNAL   Patent: US 6218371-A 24 17-APR-2001;
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ACCESSION   AR154678
VERSION     AR154678.1  GI:15122731
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SOURCE      Unknown.
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REFERENCE   1  (bases 1 to 20)
  AUTHORS   Krieg,A.M. and Kline,J.N.
  TITLE     Immunostimulatory nucleic acid molecules
  JOURNAL   Patent: US 6239116-A 7 29-MAY-2001;
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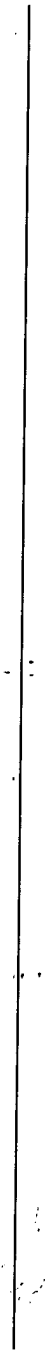

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SUMMARIES

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| 22 | 20 | 100.0 | 20 | 22 | AAH75852 | Thiophosphate subs |
| 23 | 20 | 100.0 | 20 | 22 | AAH43897 | Human hsp60 relate |
| 24 | 20 | 100.0 | 20 | 22 | AAH50577 | Mouse B cell stimu |
| 25 | 20 | 100.0 | 20 | 22 | AAH20398 | CpG motif containi |
| 26 | 20 | 100.0 | 20 | 22 | AAH20438 | CpG motif containi |
| 27 | 20 | 100.0 | 20 | 22 | AAH23751 | Synthetic oligonuc |
| 28 | 20 | 100.0 | 20 | 22 | AAF98806 | CpG immunostimulat |
| 29 | 20 | 100.0 | 20 | 22 | AAF99558 | Immunostimulatory |
| 30 | 20 | 100.0 | 20 | 22 | AAF99604 | Immunostimulatory |
| 31 | 20 | 100.0 | 20 | 22 | AAF99660 | Immunostimulatory |
| 32 | 20 | 100.0 | 20 | 22 | AAD02985 | Immunomodulatory a |
| 33 | 20 | 100.0 | 20 | 22 | AAA92365 | CG motif and CFA c |
| 34 | 20 | 100.0 | 20 | 22 | AAH19257 | Phosphorothioate C |
| 35 | 20 | 100.0 | 20 | 22 | AAH19285 | CpG Oligonucleotid |
| 36 | 20 | 100.0 | 20 | 22 | AAH19294 | CpG Oligonucleotid |
| 37 | 20 | 100.0 | 20 | 22 | AAH19304 | CpG oligonucleotid |
| 38 | 20 | 100.0 | 20 | 24 | AAL39209 | Murine Toll-like r |
| 39 | 20 | 100.0 | 20 | 24 | AAL39298 | Murine Toll-like r |
| 40 | 20 | 100.0 | 20 | 24 | AAL43438 | Immunostimulatory |
| 41 | 20 | 100.0 | 20 | 24 | ABK85992 | Dendritic cell sti |
| 42 | 20 | 100.0 | 20 | 24 | ABN88306 | Immunostimulatory |
| 43 | 20 | 100.0 | 20 | 24 | ABK10586 | Thiophosphate subs |
| 44 | 20 | 100.0 | 20 | 24 | ABL41286 | Synthetic CpG targ |
| 45 | 20 | 100.0 | 20 | 24 | ABL35120 | Immunostimulatory |

ALIGNMENTS

RESULT 1
AAT88792
ID AAT88792 standard; DNA; 20 BP.
XX
AC AAT88792;
XX
DT 24-APR-1998 (first entry)
XX
DE Synthetic phosphorothioate oligonucleotide used as an adjuvant.
XX
KW Parvovirus; feline; canine; T cell epitope; VP1; VP2; vaccine;
KW immunogen; phosphorothioate; cat; dog; mink; adjuvant; ss.
XX
OS Synthetic.
XX
PN WO9740163-A1.
XX
PD 30-OCT-1997.
XX
PF 18-APR-1997; 97WO-EP01943.
XX
PR 19-APR-1996; 96EP-0106217.
XX
PA (COLP/) COLPAN M.
XX
PI Baker HJ, Colpan M, Schorr J, Smith BF;
XX
DR WPI; 1997-535847/49.
XX
PT Vaccine containing nucleic acid expressing parvoviral epitope -
PT particularly both B and T cell epitope(s), for immunisation of cats,
PT dogs and mink against parvoviruses, also as a carrier for other

```
PT   antigens
XX
PS   Claim 17; Page 23; 30pp; English.
XX
CC   This is a synthetic phosphorothioate oligonucleotide used as an adjuvant
CC   in an anti-parvovirus vaccine. This adjuvant is particularly a DNA,
CC   containing unmethylated CpG motifs i.e. ISO. The ISO contains
CC   phosphorothioate linkages and is a also a powerful immune activator. The
CC   anti-parvovirus vaccine contains nucleic acid encoding at least one
CC   parvovirus-specific VP1 or VP2 T/B cell antigenic epitope plus a carrier.
CC   The anti-parvovirus vaccine are especially used to protect cats, dogs and
CC   mink, e.g. against feline panleukopaenia virus, mink enteritis virus or
CC   gastroenteritis caused by canine parvovirus (CPV). The vaccine may also
CC   be used to deliver other immunogens, e.g. (human) hepatitis B surface
CC   antigen. Immunisation with naked DNA provides good protection against
CC   parvovirus after only one injection. Both humoral and cellular responses
CC   may be induced.
XX
SQ   Sequence 20 BP; 3 A; 6 C; 4 G; 7 T; 0 other;

  Query Match             100.0%;  Score 20;  DB 18;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 1.9;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       1 TCCATGACGTTCCTGATGCT 20
           ||||||||||||||||||||
Db       1 TCCATGACGTTCCTGATGCT 20


RESULT 2
AAV45995
ID   AAV45995 standard; DNA; 20 BP.
XX
AC   AAV45995;
XX
DT   16-OCT-1998  (first entry)
XX
DE   Immune adjuvant CpG (1668).
XX
KW   Immune system; adjuvant; vaccine; cancer; prophylactic; pathogenicity;
KW   modulator; tolerance; regulator; helper cell; antigen; immunoglobulin;
KW   Ig class; autoimmune response; T-cell; B-cell; tumour; ss.
XX
OS   Class Bacteria.
XX
PN   EP855184-A1.
XX
PD   29-JUL-1998.
XX
PF   23-JAN-1997;   97EP-0101019.
XX
PR   23-JAN-1997;   97EP-0101019.
XX
PA   (HEEG/) HEEG K.
PA   (LIPF/) LIPFORD G B.
PA   (WAGN/) WAGNER H.
XX
PI   Heeg K,  Lipford GB,  Wagner H;
XX
DR   WPI; 1998-389630/34.
XX
PT   Antigenic composition comprises polynucleotide fragment and antigen
PT   - used as vaccine to treat or prevent e.g. cancer or pathogen
PT   infections and to modulate immune response e.g. tolerance break and
PT   regulation of TH1/TH2 cells
XX
PS   Example 1; Page 6; 28pp; English.
XX
CC   AAV45993-V46019 are fragments of bacterial polynucleotides which are
CC   used as immune adjuvants for inclusion into vaccines to treat cancer and
CC   for prophylaxis and/or treatment of conditions caused by pathogenic
CC   micro-organisms. The polynucleotide is used for modulation of an immune
CC   response and the modulation is selected from the group break of
CC   tolerance, regulation of TH1/TH2 helper cell responses, switch of Ig
CC   classes, treatment of autoimmune responses and induction of tolerances.
CC   DNA oligomers are used to enhance the reactivity of immune cells to
CC   viral, bacterial and parasitic antigens, to break tolerance in anergic T
CC   and B cells e.g. against tumour antigens, as adjuvants in vaccination
CC   against tumour-defined antigens and immunostimulatory substances in an
CC   immune response against tumours and to suppress immune reactions of the
CC   innate and acquired immune system. The composition is inexpensive and
CC   stable and does not cause lethal shock, which happens with prior art
CC   bacterial sequences.
XX
SQ   Sequence 20 BP; 3 A; 6 C; 4 G; 7 T; 0 other;

  Query Match             100.0%;  Score 20;  DB 19;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 1.9;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       1 TCCATGACGTTCCTGATGCT 20
           ||||||||||||||||||||
Db       1 TCCATGACGTTCCTGATGCT 20


RESULT 3
AAV45996
ID   AAV45996 standard; DNA; 20 BP.
XX
AC   AAV45996;
XX
DT   16-OCT-1998  (first entry)
XX
DE   Immune adjuvant CpG (1668).
XX
KW   Immune system; adjuvant; vaccine; cancer; prophylactic; pathogenicity;
KW   modulator; tolerance; regulator; helper cell; antigen; immunoglobulin;
KW   Ig class; autoimmune response; T-cell; B-cell; tumour; ss.
XX
OS   Class Bacteria.
XX
PN   EP855184-A1.
XX
PD   29-JUL-1998.
XX
PF   23-JAN-1997;   97EP-0101019.
XX
PR   23-JAN-1997;   97EP-0101019.
XX
PA   (HEEG/) HEEG K.
PA   (LIPF/) LIPFORD G B.
PA   (WAGN/) WAGNER H.
XX
PI   Heeg K,  Lipford GB,  Wagner H;
XX
DR   WPI; 1998-389630/34.
XX
PT   Antigenic composition comprises polynucleotide fragment and antigen
PT   - used as vaccine to treat or prevent e.g. cancer or pathogen
PT   infections and to modulate immune response e.g. tolerance break and
PT   regulation of TH1/TH2 cells
XX
PS   Example 3; Page 7; 28pp; English.
XX
CC   AAV45993-V46019 are fragments of bacterial polynucleotides which are
CC   used as immune adjuvants for inclusion into vaccines to treat cancer and
CC   for prophylaxis and/or treatment of conditions caused by pathogenic
CC   micro-organisms. The polynucleotide is used for modulation of an immune
CC   response and the modulation is selected from the group break of
CC   tolerance, regulation of TH1/TH2 helper cell responses, switch of Ig
CC   classes, treatment of autoimmune responses and induction of tolerances.
CC   DNA oligomers are used to enhance the reactivity of immune cells to
CC   viral, bacterial and parasitic antigens, to break tolerance in anergic T
CC   and B cells e.g. against tumour antigens, as adjuvants in vaccination
CC   against tumour-defined antigens and immunostimulatory substances in an
CC   immune response against tumours and to suppress immune reactions of the
```

```
CC   innate and acquired immune system. The composition is inexpensive and
CC   stable and does not cause lethal shock, which happens with prior art
CC   bacterial sequences.
XX
SQ   Sequence 20 BP; 3 A; 6 C; 4 G; 7 T; 0 other;

  Query Match             100.0%;  Score 20;  DB 19;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 1.9;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGACGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATGACGTTCCTGATGCT 20


RESULT 4
AAV27708
ID   AAV27708 standard; DNA; 20 BP.
XX
AC   AAV27708;
XX
DT   01-OCT-1998  (first entry)
XX
DE   Immunostimulatory oligodeoxyribonucleotide of the invention.
XX
KW   Immunostimulatory; oligodeoxyribonucleotide; ODN;
KW   unmethylated CpG dinucleotide; activate; lymphocyte; immune response;
KW   Th2; Th1; cytokine; treatment; prevention; asthma; autoimmune disease;
KW   desensitisation therapy; artificial adjuvant; antibody generation; ss.
XX
OS   Synthetic.
XX
PN   WO9818810-A1.
XX
PD   07-MAY-1998.
XX
PF   30-OCT-1997;   97WO-US19791.
XX
PR   30-OCT-1996;   96US-0738652.
XX
PA   (IOWA ) UNIV IOWA RES FOUND.
XX
PI   Kline JN,  Krieg AM;
XX
DR   WPI; 1998-272127/24.
XX
PT   New immunostimulatory nucleic acid molecules - which contain at
PT   least one unmethylated CpG dinucleotide, used for treating e.g.
PT   tumours, infections or autoimmune disease
XX
PS   Disclosure; Page 28; 109pp; English.
XX
CC   AAV27641-751 represent immunostimulatory oligodeoxyribonucleotides
CC   (ODNs) of the invention. The ODNs contain at least one unmethylated CpG
CC   dinucleotide, and have the formula:
CC   5' N1X1CGX2N2 3', where at least one nucleotide separates consecutive
CC   CpGs, X1 is adenine, guanine, or thymine, X2 is cytosine or thymine, N
CC   is any nucleotide and N1+N2 is 0-26 bases with the provision that N1 and
CC   N2 does not contain a CCGG tetramer or more than one CCG or CGG trimer
CC   OR 5' NX1X2CGX3X4N 3', where at least one nucleotide separates
CC   consecutive CpGs, X1 and X2 are selected from GpT, GpG, GpA, ApT and ApA,
CC   X3and X4 are selected from TpT or CpT, N is any nucleotide and N1+N2 is
CC   0-26 bases with the provision that N1 and N2 does not contain a CCGG
CC   tetramer or more than one CCG or CGG trimer.
CC   The ODNs activate lymphocytes in a subject and redirect a subject's
CC   immune response from a Th2 to a Th1 (e.g. by inducing monocytic cells
CC   and other cells to produce Th1 cytokines, including IL-12, IFN-gamma and
CC   GM-CSF). The ODNs can be used to treat or prevent an asthmatic disorder,
CC   autoimmune diseases, in desensitisation therapy, as an artificial
CC   adjuvant during antibody generation in a mammal such as a mouse or a
CC   human.
XX
SQ   Sequence 20 BP; 3 A; 6 C; 4 G; 7 T; 0 other;

  Query Match             100.0%;  Score 20;  DB 19;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 1.9;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGACGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATGACGTTCCTGATGCT 20


RESULT 5
AAV27700
ID   AAV27700 standard; DNA; 20 BP.
XX
AC   AAV27700;
XX
DT   01-OCT-1998  (first entry)
XX
DE   Immunostimulatory oligodeoxyribonucleotide 3Md.
XX
KW   Immunostimulatory; oligodeoxyribonucleotide; ODN;
KW   unmethylated CpG dinucleotide; activate; lymphocyte; immune response;
KW   Th2; Th1; cytokine; treatment; prevention; asthma; autoimmune disease;
KW   desensitisation therapy; artificial adjuvant; antibody generation; ss.
XX
OS   Synthetic.
XX
PN   WO9818810-A1.
XX
PD   07-MAY-1998.
XX
PF   30-OCT-1997;   97WO-US19791.
XX
PR   30-OCT-1996;   96US-0738652.
XX
PA   (IOWA ) UNIV IOWA RES FOUND.
XX
PI   Kline JN,  Krieg AM;
XX
DR   WPI; 1998-272127/24.
XX
PT   New immunostimulatory nucleic acid molecules - which contain at
PT   least one unmethylated CpG dinucleotide, used for treating e.g.
PT   tumours, infections or autoimmune disease
XX
PS   Disclosure; Page 27; 109pp; English.
XX
CC   AAV27641-751 represent immunostimulatory oligodeoxyribonucleotides
CC   (ODNs) of the invention. The ODNs contain at least one unmethylated CpG
CC   dinucleotide, and have the formula:
CC   5' N1X1CGX2N2 3', where at least one nucleotide separates consecutive
CC   CpGs, X1 is adenine, guanine, or thymine, X2 is cytosine or thymine, N
CC   is any nucleotide and N1+N2 is 0-26 bases with the provision that N1 and
CC   N2 does not contain a CCGG tetramer or more than one CCG or CGG trimer
CC   OR 5' NX1X2CGX3X4N 3', where at least one nucleotide separates
CC   consecutive CpGs, X1 and X2 are selected from GpT, GpG, GpA, ApT and ApA,
CC   X3and X4 are selected from TpT or CpT, N is any nucleotide and N1+N2 is
CC   0-26 bases with the provision that N1 and N2 does not contain a CCGG
CC   tetramer or more than one CCG or CGG trimer.
CC   The ODNs activate lymphocytes in a subject and redirect a subject's
CC   immune response from a Th2 to a Th1 (e.g. by inducing monocytic cells
CC   and other cells to produce Th1 cytokines, including IL-12, IFN-gamma and
CC   GM-CSF). The ODNs can be used to treat or prevent an asthmatic disorder,
CC   autoimmune diseases, in desensitisation therapy, as an artificial
CC   adjuvant during antibody generation in a mammal such as a mouse or a
CC   human.
XX
SQ   Sequence 20 BP; 3 A; 6 C; 4 G; 7 T; 0 other;

  Query Match             100.0%;  Score 20;  DB 19;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 1.9;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;
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```
Qy      1 TCCATGACGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATGACGTTCCTGATGCT 20
```

RESULT 6
AAV27651
ID AAV27651 standard; DNA; 20 BP.
XX
AC AAV27651;
XX
DT 01-OCT-1998 (first entry)
XX
DE Immunostimulatory oligodeoxyribonucleotide of the invention.
XX
KW Immunostimulatory; oligodeoxyribonucleotide; ODN;
KW unmethylated CpG dinucleotide; activate; lymphocyte; immune response;
KW Th2; Th1; cytokine; treatment; prevention; asthma; autoimmune disease;
KW desensitisation therapy; artificial adjuvant; antibody generation; ss.
XX
OS Synthetic.
XX
PN WO9818810-A1.
XX
PD 07-MAY-1998.
XX
PF 30-OCT-1997; 97WO-US19791.
XX
PR 30-OCT-1996; 96US-0738652.
XX
PA (IOWA ) UNIV IOWA RES FOUND.
XX
PI Kline JN, Krieg AM;
XX
DR WPI; 1998-272127/24.
XX
PT New immunostimulatory nucleic acid molecules - which contain at
PT least one unmethylated CpG dinucleotide, used for treating e.g.
PT tumours, infections or autoimmune disease
XX
PS Claim 26; Page 83; 109pp; English.
XX
CC AAV27641-751 represent immunostimulatory oligodeoxyribonucleotides
CC (ODNs) of the invention. The ODNs contain at least one unmethylated CpG
CC dinucleotide, and have the formula:
CC 5' N1X1CGX2N2 3', where at least one nucleotide separates consecutive
CC CpGs, X1 is adenine, guanine, or thymine, X2 is cytosine or thymine, N
CC is any nucleotide and N1+N2 is 0-26 bases with the provision that N1 and
CC N2 does not contain a CCGG tetramer or more than one CCG or CGG trimer
CC OR 5' NX1X2CGX3X4N 3', where at least one nucleotide separates
CC consecutive CpGs, X1 and X2 are selected from GpT, GpG, GpA, ApT and ApA,
CC X3and X4 are selected from TpT or CpT, N is any nucleotide and N1+N2 is
CC 0-26 bases with the provision that N1 and N2 does not contain a CCGG
CC tetramer or more than one CCG or CGG trimer.
CC The ODNs activate lymphocytes in a subject and redirect a subject's
CC immune response from a Th2 to a Th1 (e.g. by inducing monocytic cells
CC and other cells to produce Th1 cytokines, including IL-12, IFN-gamma and
CC GM-CSF). The ODNs can be used to treat or prevent an asthmatic disorder,
CC autoimmune diseases, in desensitisation therapy, as an artificial
CC adjuvant during antibody generation in a mammal such as a mouse or a
CC human.
XX
SQ Sequence 20 BP; 3 A; 6 C; 4 G; 7 T; 0 other;

```
  Query Match            100.0%;  Score 20;  DB 19;  Length 20;
  Best Local Similarity  100.0%;  Pred. No. 1.9;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGACGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATGACGTTCCTGATGCT 20
```

RESULT 7
AAZ41879
ID AAZ41879 standard; DNA; 20 BP.
XX
AC AAZ41879;
XX
DT 24-JAN-2000 (first entry)
XX
DE IL-12 secretion inducing CpG oligonucleotide 24.
XX
KW CpG oligonucleotide; phosphorothioate; interleukin-12; IL-12; secretion;
KW human PBMC; immune response; cancer; HIV; bacterial disease; asthma;
KW neoplastic disorder; jaagsiekte; B cell; NK cell; ss; cytokine;
KW antigen presenting cell; infection; allergic disease.
XX
OS Synthetic.
XX
PN WO9951259-A2.
XX
PD 14-OCT-1999.
XX
PF 02-APR-1999; 99WO-US07335.
XX
PR 03-APR-1998; 98US-0080729.
XX
PA (IOWA ) UNIV IOWA RES FOUND.
XX
PI Krieg AM, Weiner G;
XX
DR WPI; 1999-620169/53.
XX
PT Novel synergistic combinations of immunostimulatory oligonucleotides
PT and immunopotentiating cytokines are useful for stimulating the immune
PT system -
XX
PS Example 8; Page 72; 91pp; English.
XX
CC Sequences AAZ41856-Z41949 are phosphorothioate CpG oligonucleotides
CC which are used in the invention to induce interleukin-12 (IL-12)
CC secretion from human PBMC. The invention comprises stimulating an immune
CC response in a subject comprising administering to a subject exposed to an
CC antigen, an immunopotentiating cytokine and an immunostimulatory CpG
CC oligonucleotide to induce a synergistic antigen specific immune
CC response. The methods are useful for treating cancer by stimulating an
CC antigen specific immune response against a cancer antigen. The methods
CC can also be used to treat neoplastic disorders in humans, including but
CC not limited to: sarcoma, carcinoma, fibroma, Lymphoma, melanoma,
CC neuroblastoma, retinoblastoma, and glioma. The methods are also useful
CC for treating infectious diseases, e.g. viral diseases such as HIV,
CC bacterial diseases, and fungal diseases. The methods may also be used to
CC treat allergic diseases, e.g. asthma. The methods and compositions may
CC also be applied to treat cancer and tumours in non human subjects,
CC e.g. cats and dogs. Neoplasias affecting agricultural livestock may also
CC be treated and include leukaemia, haemangiopericytoma and bovine ocular
CC neoplasia. Chronic, infectious, contagious diseases of sheep and goats
CC caused by the bacterium Corynebacterium pseudotuberculosis, and
CC contagious lung tumour of sheep caused by jaagsiekte may also be
CC treated. CpG oligonucleotides can be useful in activating B cells, NK
CC cells, and antigen presenting cells, such as monocytes and macrophages.
CC CpG oligonucleotides enhance antibody dependent cellular cytotoxicity and
CC can be used as an adjuvant in conjunction with tumour antigens to
CC protect against a tumour challenge.
XX
SQ Sequence 20 BP; 3 A; 6 C; 4 G; 7 T; 0 other;

```
  Query Match            100.0%;  Score 20;  DB 20;  Length 20;
  Best Local Similarity  100.0%;  Pred. No. 1.9;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGACGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATGACGTTCCTGATGCT 20
```

```
RESULT 8
AAZ28190
ID   AAZ28190 standard; DNA; 20 BP.
XX
AC   AAZ28190;
XX
DT   20-DEC-1999  (first entry)
XX
DE   Chlamydia trachomatis outer membrane protein gene-derived CpG oligo 3.
XX
KW   Heart disease; inflammatory; autoimmune; cardiomyopathy; adjuvant;
KW   CpG motif; vaccine; ds.
XX
OS   Synthetic.
OS   Chlamydia trachomatis.
XX
FH   Key             Location/Qualifiers
FT   modified_base   1..20
FT                   /*tag=  a
FT                   /mod_base= OTHER
FT                   /note= "OTHER = phosphorothioate linkage"
XX
PN   US5962636-A.
XX
PD   05-OCT-1999.
XX
PF   12-AUG-1998;   98US-0133774.
XX
PR   12-AUG-1998;   98US-0133774.
XX
PA   (AMGE-) AMGEN CANADA INC.
XX
PI   Bachmaier K,  Hessel AJ,  Penninger JM,  Neu N;
XX
DR   WPI; 1999-589735/50.
XX
PT   Peptides that induce or suppress inflammatory cardiomyopathy  -
XX
PS   Example 2; Column 25; 17pp; English.
XX
CC   This sequence represents DNA encoding Chlamydia trachomatis 60 kD outer
CC   membrane protein (OMP) gene-derived CpG oligonucleotide 3. This
CC   oligonucleotide contains a CpG motif. It was tested for its ability to
CC   act as an adjuvant for the M7A-alpha peptide (AAY42723), which can
CC   induce inflammatory cardiomyopathy (ICM) in mice. It was found to act as
CC   a potent immunostimulator, whereas a oligonucleotide from the same
CC   source which did not contain a CpG motif (AAZ28193) was hardly effective
CC   as an adjuvant. Inflammatory cardiomyopathy peptides (AAY42723,
CC   AAY42725-Y42731) can be used with such an adjuvant and an excipient in a
CC   vaccine for decreasing ICM.
XX
SQ   Sequence 20 BP; 3 A; 6 C; 4 G; 7 T; 0 other;

  Query Match             100.0%;  Score 20;  DB 20;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 1.9;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       1 TCCATGACGTTCCTGATGCT 20
           ||||||||||||||||||||
Db       1 TCCATGACGTTCCTGATGCT 20


RESULT 9
AAV72500
ID   AAV72500 standard; DNA; 20 BP.
XX
AC   AAV72500;
XX
DT   05-AUG-1999  (first entry)
XX
DE   CpG motif containing oligonucleotide 1.
XX
KW   CpG motif; immunogenicity; antigen; transdermal delivery technique;
KW   adjuvant; immune response; vaccine; primer; ss.
XX
OS   Synthetic.
XX
PN   WO9927961-A1.
XX
PD   10-JUN-1999.
XX
PF   02-DEC-1998;   98WO-US25563.
XX
PR   22-APR-1998;   98US-0082686.
PR   02-DEC-1997;   97US-0067146.
XX
PA   (POWD-) POWDERJECT VACCINES INC.
XX
PI   Chen D,  Drape RJ,  Sarphie D,  Swain WF,  Widera GJ;
XX
DR   WPI; 1999-358015/30.
XX
PT   New transdermal delivery of vaccine compositions
XX
PS   Claim 22; Page 23; 95pp; English.
XX
CC   This invention describes a novel method for enhancing the immunogenicity
CC   of a selected antigen by delivering an adjuvant into or across skin or
CC   tissue of the vertebrate subject using a transdermal delivery technique.
CC   The vaccine compositions of the invention are used particularly for
CC   eliciting an immune response to antigens, e.g. viral or bacterial
CC   antigens. The crystalline compositions have sufficient particle
CC   structure, rigidity and/or density characteristics which render them
CC   suitable for delivery into and/or through skin or mucosal tissue using a
CC   needleless syringe system. By administering the compositions
CC   transdermally, it is possible to achieve a stronger immune response than
CC   by conventional intramuscular injection. Transdermal administration of
CC   particulate compositions to skin or mucosal tissue also improves the
CC   safety and efficacy of commonly used immunomodulators such as adjuvants.
XX
SQ   Sequence 20 BP; 3 A; 6 C; 4 G; 7 T; 0 other;

  Query Match             100.0%;  Score 20;  DB 20;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 1.9;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       1 TCCATGACGTTCCTGATGCT 20
           ||||||||||||||||||||
Db       1 TCCATGACGTTCCTGATGCT 20


RESULT 10
AAC60281
ID   AAC60281 standard; DNA; 20 BP.
XX
AC   AAC60281;
XX
DT   14-FEB-2001  (first entry)
XX
DE   Immunostimulatory oligonucleotide #5.
XX
KW   Immunostimulatory; oligonucleotide; cancer; allergy;
KW   Alzheimer's disease; atherosclerosis; viral; bacterial; parasitic;
KW   infection; ss.
XX
OS   Homo sapiens.
XX
PN   WO200062800-A2.
XX
PD   26-OCT-2000.
XX
PF   04-APR-2000; 2000WO-EP02920.
XX
PR   19-APR-1999;   99GB-0008885.
PR   29-APR-1999;   99US-0301829.
```

XX
PA (SMIK ) SMITHKLINE BEECHAM BIOLOGICALS.
XX
PI Friede M, Garcon N, Hermand P;
XX
DR WPI; 2000-687101/67.
XX
PT Adjuvant composition comprising saponin and immunostimulatory
PT oligonucleotide CpG, useful for producing vaccine formulations for
PT prophylaxis and treatment of cancers, allergy and Alzheimer's disease
PT -
XX
PS Claim 5; Page 5; 52pp; English.
XX
CC The present invention relates to an adjuvant composition comprising a
CC saponin and an immunostimulatory oligonucleotide. A vaccine
CC composition containing the adjuvant is useful for inducing an immune
CC response in an individual and for preventing or treating disease.
CC Diseases include cancers; allergy; Alzheimer's disease and
CC atherosclerosis. The vaccine is also useful for prophylaxis and
CC treatment of viral, bacterial and parasitic infections. The present
CC sequence is an oligonucleotide of the invention.
XX
SQ Sequence 20 BP; 3 A; 6 C; 4 G; 7 T; 0 other;

Query Match 100.0%; Score 20; DB 21; Length 20;
Best Local Similarity 100.0%; Pred. No. 1.9;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 TCCATGACGTTCCTGATGCT 20
||||||||||||||||||||
Db 1 TCCATGACGTTCCTGATGCT 20

RESULT 11
AAA71935
ID AAA71935 standard; DNA; 20 BP.
XX
AC AAA71935;
XX
DT 12-JAN-2001 (first entry)
XX
DE Murine Th1 cells immunostimulatory primer CpG-ODN 1668.
XX
KW Murine; Th1 cell; tumor-reactive helper T cell; interferon gamma;
KW cytostatic; immunostimulation; treatment; tumor; lymphoma; primer; ss.
XX
OS Mus sp.
XX
PN DE19906744-A1.
XX
PD 24-AUG-2000.
XX
PF 18-FEB-1999; 99DE-1006744.
XX
PR 18-FEB-1999; 99DE-1006744.
XX
PA (ROEC/) ROECKEN M.
PA (EGET/) EGETER O.
PA (GSFU-) GSF FORSCHUNGSZENTRUM UMWELT & GESUNDHEI.
XX
PI Roecken M, Egeter O, Mocikat R;
XX
DR WPI; 2000-566166/53.
XX
PT Pharmaceutical composition useful for tumor therapy comprises
PT tumor-reactive helper T cells that produce high levels of interferon
PT gamma and little or no interleukin-4 -
XX
PS Disclosure; Page 3; 10pp; German.
XX
CC This invention describes a novel pharmaceutical composition comprising
CC tumor-reactive helper T cells which produce high levels of interferon
CC gamma and little or no interleukin-4, and excipients and additives. The
CC product of the invention have cytostatic activity. Cell line Th1 was
CC produced by culturing helper T cells in the presence of irradiated murine
CC A20 tumor cells (ATCC TIB-208), irradiated antigen-presenting cells
CC (produced by treating BALB/c spleen cells with anti-CD4 and anti-CD8
CC antibodies and complement), anti-interleukin-4 antibody, an
CC immunostimulatory oligonucleotide (CpG-ODN 1668) and interleukin-2.
CC Balb/c mice injected intraperitoneally with 0.5 x 10^6 A20 cells and
CC 0.5 x 10^6 Th1 cells exhibited over 75 % survival after 100 days,
CC compared with 0 % for mice injected with A20 cells alone. The composition
CC is useful for preventing and/or treating solid or hematopoietic tumors,
CC e.g. lymphomas, preferably by adoptive transfer. This sequence rerpesents
CC a primer used in the method of the invention.
XX
SQ Sequence 20 BP; 3 A; 6 C; 4 G; 7 T; 0 other;

Query Match 100.0%; Score 20; DB 21; Length 20;
Best Local Similarity 100.0%; Pred. No. 1.9;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 TCCATGACGTTCCTGATGCT 20
||||||||||||||||||||
Db 1 TCCATGACGTTCCTGATGCT 20

RESULT 12
AAA90453
ID AAA90453 standard; DNA; 20 BP.
XX
AC AAA90453;
XX
DT 10-JAN-2001 (first entry)
XX
DE CpG adjuvant oligonucleotide, SEQ ID NO:7.
XX
KW CpG oligonucleotide; CpG motif; adjuvant; microdroplet emulsion;
KW microemulsion; adsorbent microparticle; vaccine; Th1 immune response;
KW viral infection; bacterial infection; parasitic infection; HCV; HBV;
KW hepatitis C virus; hepatitis B virus; herpes simplex virus; HSV; HIV;
KW human immunodeficiency virus; cytomegalovirus; CMV; influenza virus;
KW rabies virus; cholera; diphtheria; tetanus; pertussis;
KW Helicobacter pylori; Haemophilus influenzae; malaria; ss.
XX
OS Synthetic.
XX
PN WO200050006-A2.
XX
PD 31-AUG-2000.
XX
PF 09-FEB-2000; 2000WO-US03331.
XX
PR 26-FEB-1999; 99US-0121858.
PR 29-JUL-1999; 99US-0146391.
PR 28-OCT-1999; 99US-0161997.
XX
PA (CHIR ) CHIRON CORP.
XX
PI O'Hagan D, Ott GS, Donnelly J, Kazzaz J, Ugozzoli M, Singh M;
PI Barackman J;
XX
DR WPI; 2000-587123/55.
XX
PT Microemulsion having an adsorbent surface comprising a microdroplet
PT emulsion consisting of a metabolizable oil and an emulsifying agent
PT which is a detergent, useful as a vaccine to treat bacterial, viral,
PT and parasitic infection -
XX
PS Claim 17; Page 40; 95pp; English.
XX
CC The invention relates to a microdroplet emulsion (microemulsion) with an
CC adsorbent surface, and which comprises a metabolisable oil and an
CC emulsifying agent (a detergent). It also relates to a composition
CC comprising the microemulsion and a microparticle with an adsorbent

CC surface, where the microparticle comprises a polymer selected from a
CC poly(alpha-hydroxy acid), a polyhydroxy butyric acid, a
CC polycaprolactone, a polyorthoester, a polyanhydride, and a
CC polycyanoacrylate, and a second detergent. The surface of the
CC microparticles efficiently adsorb biologically active macromolecules such
CC as DNA, polypeptides, antigens, hormones, pharmaceuticals, enzymes,
CC mediators of transcription or translation, metabolic intermediates and
CC adjuvants. Additionally, a second biologically active molecule may be
CC encapsulated within the microparticle. The microemulsion can be used in
CC methods of immunising a host animal, particularly a human, against a
CC viral, bacterial or parasitic infection, and in methods of increasing a
CC Th1 immune response. The microemulsions (having the appropriate antigens
CC adsorbed) may be particularly used as vaccines for hepatitis C virus
CC (HCV), hepatitis B virus (HBV), herpes simplex virus (HSV), human
CC immunodeficiency virus (HIV), cytomegalovirus (CMV), influenza virus, and
CC rabies virus; the bacteria which cause cholera, diphtheria, tetanus and
CC pertussis; Helicobacter pylori and Haemophilus influenzae; and
CC malaria-causing parasites. Sequences AAA90447-A90467 represent Th1
CC lymphocyte stimulating oligonucleotides containing at least one CpG motif
CC which are claimed for use as adjuvants in the compositions of the
CC invention.
XX
SQ Sequence 20 BP; 3 A; 6 C; 4 G; 7 T; 0 other;

Query Match 100.0%; Score 20; DB 21; Length 20;
Best Local Similarity 100.0%; Pred. No. 1.9;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 TCCATGACGTTCCTGATGCT 20
||||||||||||||||||||
Db 1 TCCATGACGTTCCTGATGCT 20

RESULT 13
AAA48598
ID AAA48598 standard; DNA; 20 BP.
XX
AC AAA48598;
XX
DT 20-SEP-2000 (first entry)
XX
DE Immunostimulatory oligonucleotide 1668.
XX
KW Replication protein A; immunostimulatory DNA; vaccine adjuvant;
KW immunotherapy; cancer; allergic disease; inflammatory disease;
KW inflammatory autoimmune disease; systemic lupus erythematosus;
KW arthritis; psoriasis; gingivitis; sarcoidosis; multiple sclerosis;
KW colitis; ileitis; ss.
XX
OS Synthetic.
XX
PN WO200031540-A1.
XX
PD 02-JUN-2000.
XX
PF 25-NOV-1999; 99WO-AU01052.
XX
PR 25-NOV-1998; 98AU-0007288.
XX
PA (UYQU ) UNIV QUEENSLAND.
XX
PI Stacey KJ, Sester DP, Sweet MJ, Hume DA;
XX
DR WPI; 2000-400189/34.
XX
PT Detecting immunostimulatory DNA comprising contacting with replication
PT protein A (RPA) and detecting complex formation -
XX
PS Example 1; Page 28; 101pp; English.
XX
CC Replication protein A (RPA) is involved in a novel method for detecting
CC immunostimulatory DNA. The method involves combining a sample of DNA
CC with RPA and detecting complex formation. This method can be used to
CC identify agonists and antagonists of immunostimulatory DNA. Agonists or
CC antagonists may be used as vaccine adjuvants and for, immunotherapy for
CC cancer, allergic diseases, inflammatory diseases and inflammatory
CC autoimmune diseases (eg. systemic lupus erythematosus, arthritis,
CC psoriasis, gingivitis, sarcoidosis, multiple sclerosis, colitis and
CC ileitis). The present sequence is the immunostimulatory oligonucleotide
CC 1668. This was used in the development of the novel method.
XX
SQ Sequence 20 BP; 3 A; 6 C; 4 G; 7 T; 0 other;

Query Match 100.0%; Score 20; DB 21; Length 20;
Best Local Similarity 100.0%; Pred. No. 1.9;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 TCCATGACGTTCCTGATGCT 20
||||||||||||||||||||
Db 1 TCCATGACGTTCCTGATGCT 20

RESULT 14
AAZ99648
ID AAZ99648 standard; DNA; 20 BP.
XX
AC AAZ99648;
XX
DT 12-JUL-2000 (first entry)
XX
DE Nucleotide sequence of non-G-motif oligonucleotide 1668.
XX
KW G-motif oligonucleotide; vaccine; Toxoplasmosis; viral infection;
KW antigen presenting cell activation; natural killer cell; septic shock;
KW cytotoxic T-lymphocyte; inflammation; autoimmune disease;
KW rheumatoid arthritis; Crohn's disease; sarcoidosis; multiple sclerosis;
KW Kawasaki syndrome; graft-versus-host disease; transplant rejection;
KW helper T cell response 1-mediated disease; Lyme arthritis;
KW Streptococcal induced arthritis; chronic inflammatory bowel disease;
KW psoriasis vulgaris; experimental allergic encephalomyelitis;
KW insulin-dependent diabetes mellitus; bacterial infection;
KW parasitic infection; Leishmaniasis; spontaneous abortion; tumour; ss.
XX
OS Synthetic.
XX
PN WO200014217-A2.
XX
PD 16-MAR-2000.
XX
PF 03-SEP-1999; 99WO-EP06502.
XX
PR 03-SEP-1998; 98EP-0116652.
XX
PA (CPGI-) CPG IMMUNOPHARMACEUTICALS GMBH.
XX
PI Wagner H, Lipford GB, Heeg K;
XX
DR WPI; 2000-256970/22.
XX
PT Compositions comprising G-motif oligonucleotides useful for treating
PT e.g. septic shock, rheumatoid arthritis, diabetes and human
PT immunodeficiency virus infections -
XX
PS Example 14; Page 32; 75pp; English.
XX
CC The present sequence represents a non-G-motif oligonucleotide of the
CC invention. The specification describes compositions comprising G-motif
CC oligonucleotides. The G-motif oligonucleotides inhibit activation of
CC antigen presenting cells by inhibiting the uptake of DNA by a cell, by
CC stimulating natural killer cells, or by co-stimulating cytotoxic
CC T-lymphocytes. The G-motif oligonucleotides may be used for the
CC productions of vaccines for treating septic shock, inflammation,
CC autoimmune diseases (e.g. rheumatoid arthritis, Crohn's disease,
CC sarcoidosis, multiple sclerosis, Kawasaki syndrome, graft-versus-host
CC disease and transplant rejection), helper T cell response 1-mediated
CC diseases (e.g. Streptococcal induced arthritis, Lyme arthritis, chronic

CC inflammatory bowel disease, psoriasis vulgaris, experimental allergic
CC encephalomyelitis, and insulin-dependent diabetes mellitus), bacterial
CC infections, parasitic infections (e.g. Leishmaniasis or Toxoplasmosis),
CC viral infections (e.g. Cytomegalovirus and human immunodeficiency virus
CC (HIV)-infections), spontaneous abortions and tumours. They may also be
CC used to induce proliferation of bone marrow cells, especially macrophage
CC precursor cells.
XX
SQ Sequence 20 BP; 3 A; 6 C; 4 G; 7 T; 0 other;

Query Match 100.0%; Score 20; DB 21; Length 20;
Best Local Similarity 100.0%; Pred. No. 1.9;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 TCCATGACGTTCCTGATGCT 20
||||||||||||||||||||
Db 1 TCCATGACGTTCCTGATGCT 20

RESULT 15
AAZ99173
ID AAZ99173 standard; DNA; 20 BP.
XX
AC AAZ99173;
XX
DT 21-JUN-2000 (first entry)
XX
DE Inflammatory cardiomyopathy immunostimulatory oligonucleotide #2.
XX
KW Cardiant; murine alpha myosin heavy chain; inflammatory myocarditis;
KW autoimmune inflammatory cardiomyopathy; Chlamydia; antibody; vaccine;
KW hybridization probe; immunostimulatory; ss.
XX
OS Synthetic.
XX
PN US6034230-A.
XX
PD 07-MAR-2000.
XX
PF 03-MAY-1999; 99US-0303862.
XX
PR 12-AUG-1998; 98US-0133774.
XX
PA (AMGE-) AMGEN CANADA INC.
XX
PI Neu N, Penninger JM, Bachmaier K, Hessel AJ;
XX
DR WPI; 2000-255712/22.
XX
PT DNA molecules encoding novel myocardial peptides used for inhibiting
PT and inducing inflammatory cardiomyopathy in vivo -
XX
PS Disclosure; Column 17; 17pp; English.
XX
CC The invention relates to the isolation of sequences coding for peptide
CC sequences derived from bacteria and viruses which may cause inflammatory
CC cardiomyopathy. The peptide sequences are searched based on the sequence
CC of the M7A peptides derived from the murine alpha myosin heavy chain
CC polypeptide. The consensus sequence of the murine M7A-alpha/beta peptides
CC (Y83813) was used to search the PIR public database for similar bacterial
CC and viral sequences able to cause inflammatory cardiomyopathy. The screen
CC isolated the peptides Y83814-Y83819 and their corresponding coding
CC sequences Z99164-Z99169. The peptides encoded by the DNAs are used, alone
CC or in conjunction with other therapeutics, for inducing or inhibiting
CC inflammatory cardiomyopathy in vivo, where the cardiomyopathy is
CC autoimmune inflammatory cardiomyopathy, and inflammatory cardiomyopathy
CC caused by Chlamydia or other bacterial or viral infections that cause
CC inflammatory cardiomyopathy. The oligonucleotides Z99172-Z99176 were
CC shown to increase the immunogenicity of the immunostimulatory peptides
CC when injected simultaneously. The peptides may also be used for
CC increasing inflammatory myocarditis in a mammal. Antibodies against the
CC peptides and the peptides themselves are used for measuring the risk of
CC inflammatory cardiomyopathy in a mammal. The peptides may also be used
CC in vaccines. Nucleic acids encoding the peptides may be used as
CC hybridization probes, e.g. in diagnostic assays to test for the
CC presence of Chlamydia DNA.
XX
SQ Sequence 20 BP; 3 A; 6 C; 4 G; 7 T; 0 other;

Query Match 100.0%; Score 20; DB 21; Length 20;
Best Local Similarity 100.0%; Pred. No. 1.9;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 TCCATGACGTTCCTGATGCT 20
||||||||||||||||||||
Db 1 TCCATGACGTTCCTGATGCT 20

Search completed: March 1, 2003, 23:05:57
Job time : 144.75 secs

GenCore version 5.1.4_p5_4578


OM nucleic - nucleic search, using sw model

Run on: March 1, 2003, 22:50:16 ; Search time 1059.75 Seconds
(without alignments)
305.647 Million cell updates/sec

Title: US-09-818-918-44
Perfect score: 20
Sequence: 1 tccatgacgttcctgatgct 20

Scoring table: IDENTITY_NUC
Gapop 10.0 , Gapext 1.0

Searched: 16154066 seqs, 8097743376 residues

Total number of hits satisfying chosen parameters: 357874

Minimum DB seq length: 0
Maximum DB seq length: 100

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : EST:*
1: em_estba:*
2: em_esthum:*
3: em_estin:*
4: em_estmu:*
5: em_estov:*
6: em_estpl:*
7: em_estro:*
8: em_htc:*
9: gb_est1:*
10: gb_est2:*
11: gb_htc:*
12: gb_est3:*
13: gb_est4:*
14: gb_est5:*
15: em_estfun:*
16: em_estom:*
17: gb_gss:*
18: em_gss_hum:*
19: em_gss_inv:*
20: em_gss_pln:*
21: em_gss_vrt:*
22: em_gss_fun:*
23: em_gss_mam:*
24: em_gss_mus:*
25: em_gss_other:*
26: em_gss_pro:*
27: em_gss_rod:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

| | Result No. | Score | % Query Match | Length | DB | ID | Description |
|---|---|---|---|---|---|---|---|
| c | 1 | 16.8 | 84.0 | 70 | 9 | AA855652 | AA855652 vw70g01.r |
| c | 2 | 16.8 | 84.0 | 97 | 9 | AA082589 | AA082589 zn23g09.r |
| | 3 | 14.8 | 74.0 | 87 | 10 | BE491972 | BE491972 GREB199 e |
| | 4 | 14.2 | 71.0 | 47 | 12 | BE866303 | BE866303 601678950 |
| | 5 | 14.2 | 71.0 | 63 | 9 | AU076705 | AU076705 AU076705 |
| c | 6 | 14.2 | 71.0 | 69 | 14 | BQ756528 | BQ756528 EBem09_SQ |
| | 7 | 13.8 | 69.0 | 65 | 9 | AU258102 | AU258102 AU258102 |
| c | 8 | 13.8 | 69.0 | 67 | 13 | BI702811 | BI702811 fr61f10.y |
| c | 9 | 13.8 | 69.0 | 67 | 13 | BI702948 | BI702948 fr66e04.y |
| c | 10 | 13.8 | 69.0 | 67 | 13 | BM186885 | BM186885 fv79b12.y |
| | 11 | 13.8 | 69.0 | 85 | 14 | F27246 | F27246 HSPD15096 H |
| c | 12 | 13.6 | 68.0 | 43 | 17 | AZ592659 | AZ592659 1M0403B17 |
| | 13 | 13.6 | 68.0 | 46 | 9 | AA611416 | AA611416 vo51f04.r |
| | 14 | 13.6 | 68.0 | 52 | 17 | AZ383791 | AZ383791 1M0141N02 |
| | 15 | 13.6 | 68.0 | 85 | 9 | AA808427 | AA808427 oe53b03.s |
| c | 16 | 13.6 | 68.0 | 88 | 17 | BH810399 | BH810399 SALK_0495 |
| c | 17 | 13.6 | 68.0 | 90 | 9 | AI330737 | AI330737 fa92d05.y |
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| c | 19 | 13.6 | 68.0 | 94 | 13 | BM532805 | BM532805 fx46f05.y |
| c | 20 | 13.6 | 68.0 | 94 | 13 | BM533206 | BM533206 fx48b10.y |
| c | 21 | 13.6 | 68.0 | 94 | 13 | BM533213 | BM533213 fx48c05.y |
| c | 22 | 13.6 | 68.0 | 95 | 14 | BQ454818 | BQ454818 ke10h09.y |
| | 23 | 13.6 | 68.0 | 100 | 9 | AA020129 | AA020129 mh50a10.r |
| | 24 | 13.2 | 66.0 | 56 | 14 | T51367 | T51367 yb03f11.r1 |
| | 25 | 13.2 | 66.0 | 67 | 14 | BQ754242 | BQ754242 EBca01_SQ |
| c | 26 | 13.2 | 66.0 | 99 | 17 | AZ380369 | AZ380369 1M0136G14 |
| c | 27 | 13 | 65.0 | 87 | 9 | AA760108 | AA760108 vv73b01.r |
| | 28 | 12.8 | 64.0 | 61 | 17 | BH635677 | BH635677 1008006D0 |
| | 29 | 12.8 | 64.0 | 83 | 9 | AA471012 | AA471012 ne22a09.s |
| c | 30 | 12.8 | 64.0 | 85 | 17 | BH217438 | BH217438 1006055A0 |
| | 31 | 12.8 | 64.0 | 90 | 17 | AZ780683 | AZ780683 2M0018M14 |
| | 32 | 12.8 | 64.0 | 94 | 12 | BF668241 | BF668241 602122432 |
| | 33 | 12.8 | 64.0 | 95 | 9 | AI287107 | AI287107 ui75f09.y |
| c | 34 | 12.8 | 64.0 | 100 | 9 | AA166089 | AA166089 ms24c06.r |
| | 35 | 12.6 | 63.0 | 53 | 14 | T56760 | T56760 ya71d09.r1 |
| c | 36 | 12.6 | 63.0 | 53 | 17 | AZ466360 | AZ466360 1M0277E04 |
| c | 37 | 12.6 | 63.0 | 64 | 9 | AA675240 | AA675240 vq99e10.r |
| | 38 | 12.6 | 63.0 | 71 | 12 | BF733153 | BF733153 EST058 Hu |
| c | 39 | 12.6 | 63.0 | 76 | 9 | AA812115 | AA812115 ob48e02.s |
| c | 40 | 12.6 | 63.0 | 76 | 9 | AA961529 | AA961529 oq79c04.s |
| c | 41 | 12.6 | 63.0 | 76 | 9 | AI001965 | AI001965 os98g12.s |
| c | 42 | 12.6 | 63.0 | 76 | 9 | AI014885 | AI014885 ot74b04.s |
| c | 43 | 12.6 | 63.0 | 76 | 9 | AA290622 | AA290622 zs45e11.s |
| c | 44 | 12.6 | 63.0 | 76 | 14 | H40261 | H40261 yp59d12.s1 |
| | 45 | 12.6 | 63.0 | 91 | 9 | AA688714 | AA688714 vs21e11.r |

ALIGNMENTS

RESULT 1
AA855652/c
LOCUS AA855652 70 bp mRNA linear EST 06-MAR-1998
DEFINITION vw70g01.r1 Stratagene mouse heart (#937316) Mus musculus cDNA clone IMAGE:1260336 5' similar to gb:M11301 Mouse (MOUSE);, mRNA sequence.
ACCESSION AA855652
VERSION AA855652.1 GI:2943190
KEYWORDS EST.
SOURCE house mouse.
ORGANISM Mus musculus
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
REFERENCE 1 (bases 1 to 70)
AUTHORS Marra,M., Hillier,L., Allen,M., Bowles,M., Dietrich,N., Dubuque,T., Geisel,S., Kucaba,T., Lacy,M., Le,M., Martin,J., Morris,M., Schellenberg,K., Steptoe,M., Tan,F., Underwood,K., Moore,B., Theising,B., Wylie,T., Lennon,G., Soares,B., Wilson,R. and Waterston,R.
TITLE The WashU-HHMI Mouse EST Project
JOURNAL Unpublished (1996)
COMMENT Contact: Marra M/Mouse EST Project
WashU-HHMI Mouse EST Project
Washington University School of MedicineP
4444 Forest Park Parkway, Box 8501, St. Louis, MO 63108
Tel: 314 286 1800
Fax: 314 286 1810
Email: mouseest@watson.wustl.edu
This clone is available royalty-free through LLNL ; contact the

```
            IMAGE Consortium (info@image.llnl.gov) for further information.
            MGI:662888
            Seq primer: -28m13 rev1 ET from Amersham
            High quality sequence stop: 19.
FEATURES             Location/Qualifiers
     source          1. .70
                     /organism="Mus musculus"
                     /strain="NIH Swiss"
                     /db_xref="taxon:10090"
                     /clone="IMAGE:1260336"
                     /clone_lib="Stratagene mouse heart (#937316)"
                     /sex="pooled"
                     /tissue_type="heart"
                     /dev_stage="13 day embryos"
                     /lab_host="SOLR (kanamycin resistant)"
                     /note="Organ: heart; Vector: pBluescript SK-; Site_1:
                     EcoRI; Site_2: XhoI; Cloned unidirectionally.  Primer:
                     Oligo dT. 93 pooled NIH/Swiss 13 day embryo hearts.
                     Average insert size: 1.0 kb; Uni-ZAP XR Vector; ~5'
                     adaptor sequence: 5' GAATTCGGCACGAG 3' ~3' adaptor
                     sequence: 5' CTCGAGTTTTTTTTTTTTTTTTT 3'"
BASE COUNT       20 a     22 c     17 g     11 t
ORIGIN

  Query Match             84.0%;  Score 16.8;  DB 9;  Length 70;
  Best Local Similarity   90.0%;  Pred. No. 1e+03;
  Matches   18;  Conservative    0;  Mismatches    2;  Indels    0;  Gaps    0;

Qy       1 TCCATGACGTTCCTGATGCT 20
           |||||| || ||||||||||
Db      36 TCCATGTCGGTCCTGATGCT 17


RESULT 2
AA082589/c
LOCUS       AA082589                 97 bp    mRNA    linear   EST 23-DEC-1997
DEFINITION  zn23g09.r1 Stratagene neuroepithelium NT2RAMI 937234 Homo sapiens
            cDNA clone IMAGE:548320 5' similar to TR:G387484 G387484 POL
            PROTEIN ;, mRNA sequence.
ACCESSION   AA082589
VERSION     AA082589.1  GI:1624648
KEYWORDS    EST.
SOURCE      human.
  ORGANISM  Homo sapiens
            Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
            Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
REFERENCE   1  (bases 1 to 97)
  AUTHORS   Hillier,L., Lennon,G., Becker,M., Bonaldo,M.F., Chiapelli,B.,
            Chissoe,S., Dietrich,N., DuBuque,T., Favello,A., Gish,W., Hawkins
            ,M., Hultman,M., Kucaba,T., Lacy,M., Le,M., Le,N., Mardis,E., Moore
            ,B., Morris,M., Parsons,J., Prange,C., Rifkin,L., Rohlfing,T.,
            Schellenberg,K., Soares,M.B., Tan,F., Thierry-Meg,J., Trevaskis,E.,
            Underwood,K., Wohldmann,P., Waterston,R., Wilson,R. and Marra,M.
  TITLE     Generation and analysis of 280,000 human expressed sequence tags
  JOURNAL   Genome Res. 6 (9), 807-828 (1996)
  MEDLINE   97044478
COMMENT     Contact: Wilson RK
            Washington University School of Medicine
            4444 Forest Park Parkway, Box 8501, St. Louis, MO 63108
            Tel: 314 286 1800
            Fax: 314 286 1810
            Email: est@watson.wustl.edu
            WARNING: There is evidence that suggests that the 384-well parent
            plate of this clone contains both human and mouse derived clones.
            Thus, the origin of this clone is uncertain. This caution should be
            kept in mind should you use this clone.

            This clone is available royalty-free through LLNL ; contact the
            IMAGE Consortium (info@image.llnl.gov) for further information.
            Trace considered overall poor quality
            Possible reversed clone: similarity on wrong strand
            Seq primer: -28M13 rev2 from Amersham
            High quality sequence stop: 1.
FEATURES             Location/Qualifiers
     source          1. .97
                     /organism="Homo sapiens"
                     /db_xref="GDB:3926836"
                     /db_xref="taxon:9606"
                     /clone="IMAGE:548320"
                     /clone_lib="Stratagene neuroepithelium NT2RAMI 937234"
                     /dev_stage="Ntera-2/RA+MI neuroepithelial cells"
                     /lab_host="SOLR (kanamycin resistant)"
                     /note="Vector: pBluescript SK-; Site_1: EcoRI; Site_2:
                     XhoI; Cloned unidirectionally.  Primer: Oligo dT. NT2
                     (Ntera-2/c1.D1)  precursor cells induced with Retinoic
                     Acid for 1 week, followed by 3 weeks in mitotic inhibitors
                     (Replate #2). Average insert size: 1.1 kb; Uni-ZAP XR
                     Vector; ~5' adaptor sequence: 5' GAATTCGGCACGAG 3' ~3'
                     adaptor sequence: 5' CTCGAGTTTTTTTTTTTTTTTTT 3'"
BASE COUNT       24 a     31 c     23 g     11 t      8 others
ORIGIN

  Query Match             84.0%;  Score 16.8;  DB 9;  Length 97;
  Best Local Similarity   90.0%;  Pred. No. 1.1e+03;
  Matches   18;  Conservative    0;  Mismatches    2;  Indels    0;  Gaps    0;

Qy       1 TCCATGACGTTCCTGATGCT 20
           |||||| || ||||||||||
Db      44 TCCATGTCGGTCCTGATGCT 25


RESULT 3
BE491972
LOCUS       BE491972                 87 bp    mRNA    linear   EST 03-JAN-2001
DEFINITION  GREB199 estradiol-responsive cDNAs from MCF7 cell line (Homo
            sapiens breast adenocarcinoma) Homo sapiens cDNA clone GREB199,
            mRNA sequence.
ACCESSION   BE491972
VERSION     BE491972.1  GI:11079927
KEYWORDS    EST.
SOURCE      human.
  ORGANISM  Homo sapiens
            Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
            Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
REFERENCE   1  (bases 1 to 87)
  AUTHORS   Ghosh,M.G., Thompson,D.A. and Weigel,R.J.
  TITLE     PDZK1 and GREB1 are estrogen-regulated genes expressed in
            hormone-responsive breast cancer
  JOURNAL   Cancer Res. 60 (22), 6367-6375 (2000)
  MEDLINE   20552162
COMMENT     Contact: Thompson, D.A.
            Department of Surgery
            Stanford University
            MSLS Building, Room P228, 1201 Welch Road., Stanford, CA 94305, USA
            Tel: 650 498 5510
            Fax: 650 723 8762
            Email: devont@leland.stanford.edu
            Seq primer: T7.
FEATURES             Location/Qualifiers
     source          1. .87
                     /organism="Homo sapiens"
                     /db_xref="taxon:9606"
                     /clone="GREB199"
                     /clone_lib="estradiol-responsive cDNAs from MCF7 cell line
                     (Homo sapiens breast adenocarcinoma)"
                     /sex="female"
                     /tissue_type="breast"
                     /cell_line="adenocarcinoma"
                     /note="Vector: pCDNA 2.1 TA cloning vector; Site_1: EcoR
                     I; Site_2: EcoR I; fragments generated using suppression
                     subtractive hybridization (SSH) PCR with polyA+RNA from
                     MCF7 cells"
BASE COUNT       11 a     24 c     22 g     30 t
ORIGIN

  Query Match             74.0%;  Score 14.8;  DB 10;  Length 87;
```

```
  Best Local Similarity   88.9%;  Pred. No. 8.5e+03;
  Matches   16;  Conservative    0;  Mismatches    2;  Indels    0;  Gaps    0;

Qy       1 TCCATGACGTTCCTGATG 18
           ||||| ||||||||| ||
Db      38 TCCATTACGTTCCTGTTG 55


RESULT 4
BE866303
LOCUS       BE866303                 47 bp    mRNA    linear   EST 27-SEP-2000
DEFINITION  601678950F1 NIH_MGC_53 Homo sapiens cDNA clone IMAGE:3961308 5',
            mRNA sequence.
ACCESSION   BE866303
VERSION     BE866303.1  GI:10315183
KEYWORDS    EST.
SOURCE      human.
  ORGANISM  Homo sapiens
            Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
            Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
REFERENCE   1  (bases 1 to 47)
  AUTHORS   NIH-MGC http://mgc.nci.nih.gov/.
  TITLE     National Institutes of Health, Mammalian Gene Collection (MGC)
  JOURNAL   Unpublished (1999)
COMMENT     Contact: Robert Strausberg, Ph.D.
            Email: cgapbs-r@mail.nih.gov
            Tissue Procurement: ATCC
             cDNA Library Preparation: CLONTECH Laboratories, Inc.
             cDNA Library Arrayed by: The I.M.A.G.E. Consortium (LLNL)
             DNA Sequencing by: Incyte Genomics, Inc.
             Clone distribution: MGC clone distribution information can be
            found through the I.M.A.G.E. Consortium/LLNL at: image.llnl.gov
            Plate: LLCM845  row: d  column: 13
            High quality sequence stop: 37.
FEATURES             Location/Qualifiers
     source          1. .47
                     /organism="Homo sapiens"
                     /db_xref="taxon:9606"
                     /clone="IMAGE:3961308"
                     /clone_lib="NIH_MGC_53"
                     /tissue_type="carcinoma, cell line"
                     /lab_host="DH10B (T1 phage-resistant)"
                     /note="Organ: bladder; Vector: pDNR-LIB (Clontech);
                     Site_1: SfiI (ggccgcctcggcc); Site_2: SfiI (ggccattatggcc
                     ); Double-stranded cDNA was prepared from cell line RNA.
                     5' and 3' adaptors were used in cloning as follows: 5'
                     adaptor sequence:  5'-CACGGCCATTATGGCC-3' and 3' adaptor
                     sequence:  5'-ATTCTAGAGGCCGAGGCGGCCGACATG-dT(30)BN-3'
                     (where B = A, C, or G and N = A, C, G, or T).   Average
                     insert size 1.55 kb (range 0.9-4.0 kb).  15/15 colonies
                     contained inserts by PCR. This library was enriched for
                     full-length clones and was constructed by Clontech
                     Laboratories (Palo Alto, CA)."
BASE COUNT        9 a     12 c     11 g     15 t
ORIGIN

  Query Match             71.0%;  Score 14.2;  DB 12;  Length 47;
  Best Local Similarity   84.2%;  Pred. No. 1.3e+04;
  Matches   16;  Conservative    0;  Mismatches    3;  Indels    0;  Gaps    0;

Qy       2 CCATGACGTTCCTGATGCT 20
           ||| || | ||||||||||
Db      13 CCAGGAGGGTCCTGATGCT 31


RESULT 5
AU076705
LOCUS       AU076705                 63 bp    mRNA    linear   EST 04-MAY-2000
DEFINITION  AU076705 Sugano cDNA library Homo sapiens cDNA clone HlvA0036
            similar to 5'-end region of Human D-dopachrome tautomerase mRNA,
            mRNA sequence.
ACCESSION   AU076705
VERSION     AU076705.1  GI:7439194
KEYWORDS    EST.
SOURCE      human.
  ORGANISM  Homo sapiens
            Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
            Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
REFERENCE   1  (bases 1 to 63)
  AUTHORS   Suzuki,Y., Ishihara,D., Sasaki,M., Nakagawa,H., Hata,H., Tsunoda,T.
            , Watanabe,M., Komatsu,T., Ota,T., Isogai,T., Suyama,A. and Sugano
            ,S.
  TITLE     Statistical analysis of the 5' untranslated region of human mRNA
            using 'Oligo-Capped' cDNA libraries
  JOURNAL   Genomics 64 (3), 286-297 (2000)
  MEDLINE   20221373
COMMENT     Contact: Yutaka Suzuki
            Department of Virology
            Institute of Medical Science, University of Tokyo
            4-6-1, Shirokanedai, Minatoku, Tokyo 108-8639, Japan
            Email: ysuzuki@ims.u-tokyo.ac.jp
            Suzuki,Y., Yoshitomo-Nakagawa,K., Maruyama,K., Suyama,A. and Sugano
            ,S. Construction and characterization of a full length-enriched and
            a 5'-end-enriched cDNA library. Gene 200 (1-2), 149-156 (1997)
             This clone was obtained from a 'full length-enriched' cDNA library
            constructed by 'Oligo-Capping' method. The coding region starts
            from the 50 bp upstream to the 3'-end.
FEATURES             Location/Qualifiers
     source          1. .63
                     /organism="Homo sapiens"
                     /db_xref="taxon:9606"
                     /clone="HlvA0036"
                     /clone_lib="Sugano cDNA library"
                     /note="The cDNA was prepared using the anchor primer,
                     H-T11G, from Genhunter"
BASE COUNT       10 a     26 c     16 g     11 t
ORIGIN

  Query Match             71.0%;  Score 14.2;  DB 9;  Length 63;
  Best Local Similarity   84.2%;  Pred. No. 1.4e+04;
  Matches   16;  Conservative    0;  Mismatches    3;  Indels    0;  Gaps    0;

Qy       2 CCATGACGTTCCTGATGCT 20
           ||||| ||||||||  |||
Db      12 CCATGCCGTTCCTGGAGCT 30


RESULT 6
BQ756528/c
LOCUS       BQ756528                 69 bp    mRNA    linear   EST 26-JUL-2002
DEFINITION  EBem09_SQ002_002_R embryo, 1 Day germination, no treatment, cv
            Optic, EBem09 Hordeum vulgare cDNA clone EBem09_SQ002_002 5', mRNA
            sequence.
ACCESSION   BQ756528
VERSION     BQ756528.1  GI:21965000
KEYWORDS    EST.
SOURCE      Hordeum vulgare.
  ORGANISM  Hordeum vulgare
            Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
            Spermatophyta; Magnoliophyta; Liliopsida; Poales; Poaceae; Pooideae
            ; Triticeae; Hordeum.
REFERENCE   1  (bases 1 to 69)
  AUTHORS   Hedley,P., Liu,H., Caldwell,D., McCallum,N., Mudie,S., Cardle,L.,
            Ramsay,L., Machray,G., Marshall,D.F.M. and Waugh,R.
  TITLE     Development of Barley Transcriptome Resources
  JOURNAL   Unpublished (2001)
COMMENT     Contact: Waugh R, Marshall DF
            Genome Dynamics/Computational Biology
            Scottish Crop Research Institute
            Invergowrie, Dundee, DD2 5DA, Scotland, UK
            Tel: 00 44 1382 562731
            Fax: 00 44 1382 562426
            Email: est@scri.sari.ac.uk.
FEATURES             Location/Qualifiers
     source          1. .69
                     /organism="Hordeum vulgare"
```

/cultivar="Optic"
/db_xref="taxon:4513"
/clone="EBem09_SQ002_O02"
/clone_lib="embryo, 1 Day germination, no treatment, cv Optic, EBem09"
/tissue_type="embryo"
/dev_stage="1 Day germination"
/lab_host="DH10B"
/note="Vector: pSPORT1; Site_1: Sal I; Site_2: Not I; Non-normalised library, directionally cloned into pSPORT1. Derived from embryos dissected from germinating grains (1 day) in glasshouse grown barley plants. Developed as part of the barley transcriptome resources of BBSRC/SEERAD funded cereal IGF (Investigating Gene Function) project."
BASE COUNT 16 a 17 c 20 g 16 t
ORIGIN

Query Match 71.0%; Score 14.2; DB 14; Length 69;
Best Local Similarity 84.2%; Pred. No. 1.5e+04;
Matches 16; Conservative 0; Mismatches 3; Indels 0; Gaps 0;

Qy 2 CCATGACGTTCCTGATGCT 20
||| ||||||||| ||| |
Db 56 CCAAGACGTTCCTCATGAT 38

RESULT 7
AU258102
LOCUS AU258102 65 bp mRNA linear EST 25-APR-2002
DEFINITION AU258102 3'-directed mouse cDNA library Mus musculus cDNA clone BED0012124 3', mRNA sequence.
ACCESSION AU258102
VERSION AU258102.1 GI:20323359
KEYWORDS EST.
SOURCE house mouse.
ORGANISM Mus musculus
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
REFERENCE 1 (bases 1 to 65)
AUTHORS Kato,K. and Matoba,R.
TITLE Generation of expressed sequence tags from mouse brain
JOURNAL Unpublished (2002)
COMMENT Contact: Kikuya Kato
Graduate School of Biological Sciences
Nara Institute of Science and Technology
8916-5 Takayama, Ikoma, Nara 630-0101, Japan
Tel: 81-743-72-5581
Fax: 81-743-72-5589
Email: kkato@bs.aist-nara.ac.jp,
URL:http://love2.aist-nara.ac.jp/BED/index.html.
FEATURES Location/Qualifiers
source 1. .65
/organism="Mus musculus"
/db_xref="taxon:10090"
/clone="BED0012124"
/clone_lib="3'-directed mouse cDNA library"
/tissue_type="brain"
/note="Vector: pGEM-T-easy"
BASE COUNT 22 a 15 c 13 g 15 t
ORIGIN

Query Match 69.0%; Score 13.8; DB 9; Length 65;
Best Local Similarity 88.2%; Pred. No. 2.2e+04;
Matches 15; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

Qy 1 TCCATGACGTTCCTGAT 17
| |||||||||| |||
Db 31 TGCATGACGTTCCAGAT 47

RESULT 8
BI702811/c
LOCUS BI702811 67 bp mRNA linear EST 18-SEP-2001
DEFINITION fr61f10.y1 Zebrafish SJD day 8 fin regeneration Danio rerio cDNA clone 4962210 5' similar to SW:RL28_XENLA P46780 60S RIBOSOMAL PROTEIN L28 ;, mRNA sequence.
ACCESSION BI702811
VERSION BI702811.1 GI:15665440
KEYWORDS EST.
SOURCE zebrafish.
ORGANISM Danio rerio
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Actinopterygii; Neopterygii; Teleostei; Ostariophysi; Cypriniformes ; Cyprinidae; Danio.
REFERENCE 1 (bases 1 to 67)
AUTHORS Clark,M., Johnson,S.L., Lehrach,H., Lee,R., Li,F., Marra,M., Eddy ,S., Hillier,L., Kucaba,T., Martin,J., Beck,C., Wylie,T., Underwood ,K., Steptoe,M., Theising,B., Allen,M., Bowers,Y., Person,B., Swaller,T., Gibbons,M., Pape,D., Harvey,N., Schurk,R., Ritter,E., Kohn,S., Shin,T., Jackson,Y., Cardenas,M., McCann,R., Waterston,R. and Wilson,R.
TITLE WashU Zebrafish EST Project 1998
JOURNAL Unpublished (1998)
COMMENT Contact: Stephen L. Johnson
Washington University School of Medicine
4444 Forest Park Parkway, Box 8501, St. Louis, MO 63108, USA
Tel: 314 286 1800
Fax: 314 286 1810
Email: zbrafish@watson.wustl.edu
cDNA Library construction by: Joe Barnes and Steve Johnson. DNA Sequencing by: Washington University Genome Sequencing Center Clone distribution: Research Genetics web address:
http://www.researchgenetics.com/
Putative full length read
The vector to vector length is 68
Seq primer: T3 ET from Amersham.
FEATURES Location/Qualifiers
source 1. .67
/organism="Danio rerio"
/db_xref="taxon:7955"
/clone="4962210"
/clone_lib="Zebrafish SJD day 8 fin regeneration"
/sex="male"
/tissue_type="fin, 8-day regeneration"
/lab_host="DH10B"
/note="Vector: pAMP1; Site_1: EcoRI; Site_2: NotI; First strand cDNA synthesis was primed using oligo-dT on magnetic beads with an additional primer 5'-gcggccgctaatacgactcacta-taggg-3'. Second strand synthesis was a 3-cycle PCR using the primers 5'-ggccgctaatacgactcactatag-3' and 5'-aagcagtggtaacaacgcagagtacttt-ttttttttttttvn-3'. cDNA was subsequently amplified in a 7-cycle PCR with the following primers: 5'-ggccgctaatacgactcactatag-3' and 5'-aagcagtggt-aacaacgcag. Deoxy-UMP adaptors were added in a third PCR (5 cycles) and the primers 5'-caucaucaucauggccgctaatacgactcactataggg-3' and 5'-cuacuacuacuaaagcagtggtaacaacgcagagtac-3'. Ends were treated with uracil DNA glycosylase and product with 3' overhangs was annealed to complementary ends of pAMP1. Insert can be excised using EcoRI and NotI. Library constructed by Joe Barnes and Steve Johnson (Washington University)."
BASE COUNT 25 a 24 c 10 g 8 t
ORIGIN

Query Match 69.0%; Score 13.8; DB 13; Length 67;
Best Local Similarity 88.2%; Pred. No. 2.2e+04;
Matches 15; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

Qy 4 ATGACGTTCCTGATGCT 20
|||| |||||||| |||
Db 56 ATGATGTTCCTGACGCT 40

RESULT 9

```
BI702948/c
LOCUS       BI702948                67 bp    mRNA    linear   EST 18-SEP-2001
DEFINITION  fr66e04.y1 Zebrafish SJD day 8 fin regeneration Danio rerio cDNA
            clone 4962535 5' similar to SW:RL28_XENLA P46780 60S RIBOSOMAL
            PROTEIN L28 ;, mRNA sequence.
ACCESSION   BI702948
VERSION     BI702948.1  GI:15665577
KEYWORDS    EST.
SOURCE      zebrafish.
  ORGANISM  Danio rerio
            Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
            Actinopterygii; Neopterygii; Teleostei; Ostariophysi; Cypriniformes
            ; Cyprinidae; Danio.
REFERENCE   1  (bases 1 to 67)
  AUTHORS   Clark,M., Johnson,S.L., Lehrach,H., Lee,R., Li,F., Marra,M., Eddy
            ,S., Hillier,L., Kucaba,T., Martin,J., Beck,C., Wylie,T., Underwood
            ,K., Steptoe,M., Theising,B., Allen,M., Bowers,Y., Person,B.,
            Swaller,T., Gibbons,M., Pape,D., Harvey,N., Schurk,R., Ritter,E.,
            Kohn,S., Shin,T., Jackson,Y., Cardenas,M., McCann,R., Waterston,R.
            and Wilson,R.
  TITLE     WashU Zebrafish EST Project 1998
  JOURNAL   Unpublished (1998)
COMMENT     Contact: Stephen L. Johnson
            Washington University School of Medicine
            4444 Forest Park Parkway, Box 8501, St. Louis, MO 63108, USA
            Tel: 314 286 1800
            Fax: 314 286 1810
            Email: zbrafish@watson.wustl.edu
            cDNA Library construction by: Joe Barnes and Steve Johnson. DNA
            Sequencing by: Washington University Genome Sequencing Center Clone
            distribution: Research Genetics web address:
            http://www.researchgenetics.com/
            Putative full length read
            The vector to vector length is 68
            Seq primer: T3 ET from Amersham.
FEATURES             Location/Qualifiers
     source          1. .67
                     /organism="Danio rerio"
                     /db_xref="taxon:7955"
                     /clone="4962535"
                     /clone_lib="Zebrafish SJD day 8 fin regeneration"
                     /sex="male"
                     /tissue_type="fin, 8-day regeneration"
                     /lab_host="DH10B"
                     /note="Vector: pAMP1; Site_1: EcoRI; Site_2: NotI; First
                     strand cDNA synthesis was primed using oligo-dT on
                     magnetic beads with an additional  primer
                     5'-gcggccgctaatacgactcacta-taggg-3'. Second strand
                     synthesis was a 3-cycle PCR using  the primers
                     5'-ggccgctaatacgactcactatag-3' and
                     5'-aagcagtggtaacaacgcagagtacttt-ttttttttttttvn-3'.  cDNA
                     was subsequently amplified in a 7-cycle PCR with the
                     following primers: 5'-ggccgctaatacgactcactatag-3' and
                     5'-aagcagtggt-aacaacgcag. Deoxy-UMP adaptors were added in
                     a  third PCR (5 cycles) and the primers
                     5'-caucaucaucauggccgctaatacgactcactataggg-3' and
                     5'-cuacuacuacuaaagcagtggtaacaacgcagagtac-3'. Ends were
                     treated with uracil DNA glycosylase and  product with 3'
                     overhangs was annealed to complementary ends of pAMP1.
                     Insert can be excised  using EcoRI and NotI. Library
                     constructed by Joe Barnes and Steve Johnson (Washington
                     University)."
BASE COUNT       25 a     24 c     10 g      8 t
ORIGIN

  Query Match            69.0%;  Score 13.8;  DB 13;  Length 67;
  Best Local Similarity  88.2%;  Pred. No. 2.2e+04;
  Matches   15;  Conservative    0;  Mismatches    2;  Indels    0;  Gaps    0;

Qy       4 ATGACGTTCCTGATGCT 20
           |||| |||||||| |||
Db      56 ATGATGTTCCTGACGCT 40
```

```
RESULT 10
BM186885/c
LOCUS       BM186885                67 bp    mRNA    linear   EST 11-DEC-2001
DEFINITION  fv79b12.y1 Zebrafish SJD day 8 fin regeneration Danio rerio cDNA
            clone 5465422 5' similar to SW:RL28_XENLA P46780 60S RIBOSOMAL
            PROTEIN L28 ;, mRNA sequence.
ACCESSION   BM186885
VERSION     BM186885.1  GI:17517843
KEYWORDS    EST.
SOURCE      zebrafish.
  ORGANISM  Danio rerio
            Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
            Actinopterygii; Neopterygii; Teleostei; Ostariophysi; Cypriniformes
            ; Cyprinidae; Danio.
REFERENCE   1  (bases 1 to 67)
  AUTHORS   Clark,M., Johnson,S.L., Lehrach,H., Lee,R., Li,F., Marra,M., Eddy
            ,S., Hillier,L., Kucaba,T., Martin,J., Beck,C., Wylie,T., Underwood
            ,K., Steptoe,M., Theising,B., Allen,M., Bowers,Y., Person,B.,
            Swaller,T., Gibbons,M., Pape,D., Harvey,N., Schurk,R., Ritter,E.,
            Kohn,S., Shin,T., Jackson,Y., Cardenas,M., McCann,R., Waterston,R.
            and Wilson,R.
  TITLE     WashU Zebrafish EST Project 1998
  JOURNAL   Unpublished (1998)
COMMENT     Contact: Stephen L. Johnson
            Washington University School of Medicine
            4444 Forest Park Parkway, Box 8501, St. Louis, MO 63108, USA
            Tel: 314 286 1800
            Fax: 314 286 1810
            Email: zbrafish@watson.wustl.edu
            cDNA Library construction by: Joe Barnes and Steve Johnson. DNA
            Sequencing by: Washington University Genome Sequencing Center Clone
            distribution: Research Genetics web address:
            http://www.researchgenetics.com/
            Putative full length read
            The vector to vector length is 68
            Seq primer: T3 ET from Amersham.
FEATURES             Location/Qualifiers
     source          1. .67
                     /organism="Danio rerio"
                     /db_xref="taxon:7955"
                     /clone="5465422"
                     /clone_lib="Zebrafish SJD day 8 fin regeneration"
                     /sex="male"
                     /tissue_type="fin, 8-day regeneration"
                     /lab_host="DH10B"
                     /note="Vector: pAMP1; Site_1: EcoRI; Site_2: NotI; First
                     strand cDNA synthesis was primed using oligo-dT on
                     magnetic beads with an additional  primer
                     5'-gcggccgctaatacgactcacta-taggg-3'. Second strand
                     synthesis was a 3-cycle PCR using  the primers
                     5'-ggccgctaatacgactcactatag-3' and
                     5'-aagcagtggtaacaacgcagagtacttt-ttttttttttttvn-3'.  cDNA
                     was subsequently amplified in a 7-cycle PCR with the
                     following primers: 5'-ggccgctaatacgactcactatag-3' and
                     5'-aagcagtggt-aacaacgcag. Deoxy-UMP adaptors were added in
                     a  third PCR (5 cycles) and the primers
                     5'-caucaucaucauggccgctaatacgactcactataggg-3' and
                     5'-cuacuacuacuaaagcagtggtaacaacgcagagtac-3'. Ends were
                     treated with uracil DNA glycosylase and  product with 3'
                     overhangs was annealed to complementary ends of pAMP1.
                     Insert can be excised  using EcoRI and NotI. Library
                     constructed by Joe Barnes and Steve Johnson (Washington
                     University)."
BASE COUNT       25 a     24 c     10 g      8 t
ORIGIN

  Query Match            69.0%;  Score 13.8;  DB 13;  Length 67;
  Best Local Similarity  88.2%;  Pred. No. 2.2e+04;
  Matches   15;  Conservative    0;  Mismatches    2;  Indels    0;  Gaps    0;

Qy       4 ATGACGTTCCTGATGCT 20
           |||| |||||||| |||
```

```
Db      56 ATGATGTTCCTGACGCT 40


RESULT 11
F27246
LOCUS       F27246                    85 bp    mRNA    linear   EST 13-MAY-1999
DEFINITION  HSPD15096 HM3 Homo sapiens cDNA clone s4000067F08, mRNA sequence.
ACCESSION   F27246
VERSION     F27246.1  GI:4812872
KEYWORDS    EST.
SOURCE      human.
  ORGANISM  Homo sapiens
            Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
            Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
REFERENCE   1  (bases 1 to 85)
  AUTHORS   Lanfranchi,G., Muraro,T., Caldara,F., Pacchioni,B., Pallavicini,A.,
            Pandolfo,D., Toppo,S., Trevisan,S., Scarso,S. and Valle,G.
  TITLE     Identification of 4370 expressed sequence tags from a
            3'-end-specific cDNA library of human skeletal muscle by DNA
            sequencing and filter hybridization
  JOURNAL   Genome Res. 6 (1), 35-42 (1996)
  MEDLINE   96276048
COMMENT     Contact: Valle G.
            CRIBI Biotechnology Centre
            University of Padua
            Via Trieste 75, 35121 Padua, Italy
            ABI Chromatograms and other information are available on WWW at
            http://grup.bio.unipd.it.
FEATURES             Location/Qualifiers
     source          1. .85
                     /organism="Homo sapiens"
                     /db_xref="taxon:9606"
                     /clone="s4000067F08"
                     /clone_lib="HM3"
                     /sex="female"
                     /tissue_type="pectoral muscle (after mastectomy)"
                     /note="Vector: pcDNAII (Invitrogen); Site_1: BstXI;
                     Site_2: NotI; The library was constructed by G.
                     Lanfranchi. This library is not subtracted nor normalized.
                     The first strand cDNA was primed with a biotinylated
                     oligo-dT-NotI primer
                     (5'-biotin-AACCCGGCTCGAGCGGCCGCTTTTTTTTTTTTTTTTT-3'). The
                     ds cDNA was sonicated and size-selected in the range
                     350-550  bp. The 3' specific fragments were selected by
                     streptavidin coated magnetic beads, ligated to
                     non-palindromic BstXI adapters, NotI digested and
                     directionally cloned into BstXI-NotI cut pcDNAII vector."
BASE COUNT       19 a     23 c     23 g     20 t
ORIGIN

  Query Match             69.0%;  Score 13.8;  DB 14;  Length 85;
  Best Local Similarity   88.2%;  Pred. No. 2.4e+04;
  Matches   15;  Conservative    0;  Mismatches    2;  Indents    0;  Gaps    0;

Qy       3 CATGACGTTCCTGATGC 19
           ||||||  |||| |||||
Db      35 CATGACCTTCCAGATGC 51


RESULT 12
AZ592659/c
LOCUS       AZ592659                  43 bp    DNA     linear   GSS 13-DEC-2000
DEFINITION  1M0403B17R Mouse 10kb plasmid UUGC1M library Mus musculus genomic
            clone UUGC1M0403B17 R, DNA sequence.
ACCESSION   AZ592659
VERSION     AZ592659.1  GI:11714849
KEYWORDS    GSS.
SOURCE      house mouse.
  ORGANISM  Mus musculus
            Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
            Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
REFERENCE   1  (bases 1 to 43)
  AUTHORS   Dunn,D., Aoyagi,A., Barber,M., Beacorn,T., Duval,B., Hamil,C.,
            Islam,H., Longacre,S., Mahmoud,M., Meenen,E., Pedersen,T., Reilly
            ,M., Rose,M., Rose,R., Stokes,R., Tingey,A., von Niederhausern,A.
            and Wright,D.,Weiss,R.
  TITLE     Mouse whole genome scaffolding with paired end reads from 10kb
            plasmid inserts
  JOURNAL   Unpublished (2000)
COMMENT     Contact: Robert B. Weiss
            University of Utah Genome Center
            University of Utah
            Rm. 308, Biomedical Polymers Research Bldg., 20 S. 2030 E., SLC, UT
            84112, USA
            Tel: 801 585 5606
            Fax: 801 585 7177
            Email: ddunn@genetics.utah.edu
            Insert Length: 10000   Std Error: 0.00
            Plate: 0403  row: B  column: 17
            Seq primer: CACACAGGAAACAGCTATGACC
            Class: plasmid ends
            High quality sequence stop: 43.
FEATURES             Location/Qualifiers
     source          1. .43
                     /organism="Mus musculus"
                     /strain="C57BL/6J"
                     /db_xref="taxon:10090"
                     /clone="UUGC1M0403B17"
                     /clone_lib="Mouse 10kb plasmid UUGC1M library"
                     /sex="Male"
                     /lab_host="E. Coli strain XL10-Gold, T1-resistant, F-"
                     /note="Vector: PWD42nv; Purified genomic DNA from M.
                     musculus C57BL/6J (male) was obtained  from the Jackson
                     Laboratory Mouse DNA Resource
                     (http://www.jax.org/resources/documents/dnares/). The DNA
                     was hydrodynamically sheared by repeated passage through a
                     0.005 inch orifice at constant velocity. The sheared DNA
                     was blunt end-repaired with T4 DNA polymerase and T4
                     polynucleotide kinase. Adaptor oligonucleotides were
                     ligated to the blunt ends in high  molar excess. The
                     adaptored DNA was purified and size-selected for a 9.5 to
                     10.5 kb range using preparative agarose gel
                     electrophoresis. Vector DNA was prepared from a derivative
                     of pWD42 (gi|4732114|gb|AF129072.1), a copy-number
                     inducible derivative of plasmid R1. The vector was ligated
                     with adaptors complementary to the insert adaptors and
                     purified. The sheared, adaptored mouse DNA was annealed to
                     adaptored vector DNA, and transformed into
                     chemically-competent E. coli XL10-Gold (Stratagene) cells
                     and selected for ampicillin resistance."
BASE COUNT       13 a      7 c     14 g      9 t
ORIGIN

  Query Match             68.0%;  Score 13.6;  DB 17;  Length 43;
  Best Local Similarity   80.0%;  Pred. No. 2.3e+04;
  Matches   16;  Conservative    0;  Mismatches    4;  Indents    0;  Gaps    0;

Qy       1 TCCATGACGTTCCTGATGCT 20
           |||||||  ||  |||| |||
Db      27 TCCATGAAGTCACTGAGGCT 8


RESULT 13
AA611416
LOCUS       AA611416                  46 bp    mRNA    linear   EST 01-OCT-1997
DEFINITION  vo51f04.r1 Barstead mouse irradiated colon MPLRB7 Mus musculus cDNA
            clone IMAGE:1053439 5' similar to SW:IPYR_BOVIN P37980 INORGANIC
            PYROPHOSPHATASE ;, mRNA sequence.
ACCESSION   AA611416
VERSION     AA611416.1  GI:2461495
KEYWORDS    EST.
SOURCE      house mouse.
  ORGANISM  Mus musculus
            Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
            Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
REFERENCE   1  (bases 1 to 46)
```

AUTHORS Marra,M., Hillier,L., Allen,M., Bowles,M., Dietrich,N., Dubuque,T., Geisel,S., Kucaba,T., Lacy,M., Le,M., Martin,J., Morris,M., Schellenberg,K., Steptoe,M., Tan,F., Underwood,K., Moore,B., Theising,B., Wylie,T., Lennon,G., Soares,B., Wilson,R. and Waterston,R.
TITLE The WashU-HHMI Mouse EST Project
JOURNAL Unpublished (1996)
COMMENT Contact: Marra M/Mouse EST Project
WashU-HHMI Mouse EST Project
Washington University School of MedicineP
4444 Forest Park Parkway, Box 8501, St. Louis, MO 63108
Tel: 314 286 1800
Fax: 314 286 1810
Email: mouseest@watson.wustl.edu
This clone is available royalty-free through LLNL ; contact the IMAGE Consortium (info@image.llnl.gov) for further information.
MGI:585015
Trace considered overall poor quality
Possible reversed clone: similarity on wrong strand
Seq primer: -28m13 rev2 ET from Amersham
High quality sequence stop: 1.

FEATURES Location/Qualifiers
source 1. .46
/organism="Mus musculus"
/strain="FVB/N"
/db_xref="taxon:10090"
/clone="IMAGE:1053439"
/clone_lib="Barstead mouse irradiated colon MPLRB7"
/dev_stage="8 weeks"
/lab_host="DH10B"
/note="Vector: pT7T3D-Pac (Pharmacia) with a modified polylinker; Site_1: EcoRI; Site_2: NotI; Tissue obtained from 8 week old mouse. Colon was harvested 72 hours after irradiation with 1400 Gys. 1st strand cDNA was primed with a Not I - oligo(dT) primer [5'TGTTACGAATCTGAAGTGGGAGCGGCCGCCCTTTTTTTTTTTTTTTTTTTTTTTT 3']; double-stranded cDNA was ligated to Eco RI adaptors [AATTCGGATCCTTG], digested with Not I and cloned into the Not I and Eco RI sites of the modified pT7T3 vector. Library constructed by Bob Barstead. "

BASE COUNT 7 a 14 c 9 g 16 t
ORIGIN

Query Match 68.0%; Score 13.6; DB 9; Length 46;
Best Local Similarity 80.0%; Pred. No. 2.4e+04;
Matches 16; Conservative 0; Mismatches 4; Indels 0; Gaps 0;

Qy 1 TCCATGACGTTCCTGATGCT 20
|| || || ||||||||||
Db 6 TCTATTGCGATCCTGATGCT 25

RESULT 14
AZ383791
LOCUS AZ383791 52 bp DNA linear GSS 02-OCT-2000
DEFINITION 1M0141N02R Mouse 10kb plasmid UUGC1M library Mus musculus genomic clone UUGC1M0141N02 R, DNA sequence.
ACCESSION AZ383791
VERSION AZ383791.1 GI:10497491
KEYWORDS GSS.
SOURCE house mouse.
ORGANISM Mus musculus
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
REFERENCE 1 (bases 1 to 52)
AUTHORS Dunn,D., Aoyagi,A., Barber,M., Beacorn,T., Duval,B., Hamil,C., Islam,H., Longacre,S., Mahmoud,M., Meenen,E., Pedersen,T., Reilly,M., Rose,M., Rose,R., Stokes,R., Tingey,A., von Niederhausern,A. and Wright,D.,Weiss,R.
TITLE Mouse whole genome scaffolding with paired end reads from 10kb plasmid inserts
JOURNAL Unpublished (2000)
COMMENT Contact: Robert B. Weiss
University of Utah Genome Center
University of Utah
Rm. 308, Biomedical Polymers Research Bldg., 20 S. 2030 E., SLC, UT 84112, USA
Tel: 801 585 5606
Fax: 801 585 7177
Email: ddunn@genetics.utah.edu
Insert Length: 10000 Std Error: 0.00
Plate: 0141 row: N column: 02
Seq primer: CACACAGGAAACAGCTATGACC
Class: plasmid ends
High quality sequence stop: 52.

FEATURES Location/Qualifiers
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/organism="Mus musculus"
/strain="C57BL/6J"
/db_xref="taxon:10090"
/clone="UUGC1M0141N02"
/clone_lib="Mouse 10kb plasmid UUGC1M library"
/sex="Male"
/lab_host="E. Coli strain XL10-Gold, T1-resistant, F-"
/note="Vector: PWD42nv; Purified genomic DNA from M. musculus C57BL/6J (male) was obtained from the Jackson Laboratory Mouse DNA Resource (http://www.jax.org/resources/documents/dnares/). The DNA was hydrodynamically sheared by repeated passage through a 0.005 inch orifice at constant velocity. The sheared DNA was blunt end-repaired with T4 DNA polymerase and T4 polynucleotide kinase. Adaptor oligonucleotides were ligated to the blunt ends in high molar excess. The adaptored DNA was purified and size-selected for a 9.5 to 10.5 kb range using preparative agarose gel electrophoresis. Vector DNA was prepared from a derivative of pWD42 (gi|4732114|gb|AF129072.1), a copy-number inducible derivative of plasmid R1. The vector was ligated with adaptors complementary to the insert adaptors and purified. The sheared, adaptored mouse DNA was annealed to adaptored vector DNA, and transformed into chemically-competent E. coli XL10-Gold (Stratagene) cells and selected for ampicillin resistance."

BASE COUNT 13 a 13 c 2 g 24 t
ORIGIN

Query Match 68.0%; Score 13.6; DB 17; Length 52;
Best Local Similarity 80.0%; Pred. No. 2.5e+04;
Matches 16; Conservative 0; Mismatches 4; Indels 0; Gaps 0;

Qy 1 TCCATGACGTTCCTGATGCT 20
|| ||||| || || |||||
Db 28 TCAATGACATTTCTAATGCT 47

RESULT 15
AA808427
LOCUS AA808427 85 bp mRNA linear EST 21-APR-1998
DEFINITION oe53b03.s1 NCI_CGAP_Lu5 Homo sapiens cDNA clone IMAGE:1415309 3' similar to TR:P97431 P97431 INTERFERON REGULATORY FACTOR 6. ;, mRNA sequence.
ACCESSION AA808427
VERSION AA808427.1 GI:2877833
KEYWORDS EST.
SOURCE human.
ORGANISM Homo sapiens
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
REFERENCE 1 (bases 1 to 85)
AUTHORS NCI-CGAP http://www.ncbi.nlm.nih.gov/ncicgap.
TITLE National Cancer Institute, Cancer Genome Anatomy Project (CGAP), Tumor Gene Index
JOURNAL Unpublished (1997)
COMMENT Contact: Robert Strausberg, Ph.D.
Email: cgapbs-r@mail.nih.gov
unknown library type

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          Trace considered overall poor quality
          Insert Length: 721   Std Error: 0.00
          Seq primer: -40m13 fwd. ET from Amersham
          High quality sequence stop: 1.
FEATURES             Location/Qualifiers
     source          1. .85
                     /organism="Homo sapiens"
                     /db_xref="taxon:9606"
                     /clone="IMAGE:1415309"
                     /clone_lib="NCI_CGAP_Lu5"
                     /tissue_type="carcinoid"
                     /lab_host="DH10B"
                     /note="Organ: lung; Vector: pT7T3D-Pac (Pharmacia) with a
                     modified polylinker; 1st strand cDNA was prepared from
                     neuroendocrine lung carcinoid, and was then primed with a
                     Not I - oligo(dT) primer. Double-stranded cDNA was ligated
                     to Eco RI adaptors (Pharmacia), digested with Not I and
                     cloned into the Not I and Eco RI sites of the modified
                     pT7T3 vector.  Library is normalized. Library was
                     constructed by Bento Soares and M. Fatima Bonaldo. "
BASE COUNT       17 a     27 c     20 g     21 t
ORIGIN

  Query Match             68.0%;  Score 13.6;  DB 9;  Length 85;
  Best Local Similarity   80.0%;  Pred. No. 2.9e+04;
  Matches   16;  Conservative    0;  Mismatches    4;  Indels    0;  Gaps    0;

Qy       1 TCCATGACGTTCCTGATGCT 20
           | ||||||||||  | |||
Db      45 TTCATGACGTTCCGCAAGCT 64


Search completed: March  2, 2003, 00:41:06
Job time : 1062.75 secs
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OM nucleic - nucleic search, using sw model

Run on: March 1, 2003, 22:53:06 ; Search time 41 Seconds
(without alignments)
149.598 Million cell updates/sec

Title: US-09-818-918-44
Perfect score: 20
Sequence: 1 tccatgacgttcctgatgct 20

Scoring table: IDENTITY_NUC
Gapop 10.0 , Gapext 1.0

Searched: 441362 seqs, 153338381 residues

Total number of hits satisfying chosen parameters: 687286

Minimum DB seq length: 0
Maximum DB seq length: 100

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : Issued_Patents_NA:*
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6: /cgn2_6/ptodata/1/ina/backfiles1.seq:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

| Result No. | Score | % Query Match | Length | DB | ID | Description |
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| 1 | 20 | 100.0 | 20 | 2 | US-09-133-774-11 | Sequence 11, Appl |
| 2 | 20 | 100.0 | 20 | 3 | US-08-386-063-25 | Sequence 25, Appl |
| 3 | 20 | 100.0 | 20 | 3 | US-09-303-862-11 | Sequence 11, Appl |
| 4 | 20 | 100.0 | 20 | 4 | US-08-386-063-25 | Sequence 25, Appl |
| 5 | 20 | 100.0 | 20 | 4 | US-08-738-652-7 | Sequence 7, Appli |
| 6 | 20 | 100.0 | 20 | 4 | US-08-738-652-35 | Sequence 35, Appl |
| 7 | 20 | 100.0 | 20 | 4 | US-08-738-652-44 | Sequence 44, Appl |
| 8 | 20 | 100.0 | 20 | 4 | US-08-738-652-54 | Sequence 54, Appl |
| 9 | 20 | 100.0 | 20 | 4 | US-09-286-098-24 | Sequence 24, Appl |
| 10 | 20 | 100.0 | 20 | 4 | US-08-960-774-7 | Sequence 7, Appli |
| 11 | 20 | 100.0 | 20 | 4 | US-09-082-649B-68 | Sequence 68, Appl |
| 12 | 20 | 100.0 | 20 | 4 | US-09-082-649B-79 | Sequence 79, Appl |
| 13 | 20 | 100.0 | 20 | 4 | US-09-325-193A-19 | Sequence 19, Appl |
| 14 | 20 | 100.0 | 20 | 4 | US-09-191-170-24 | Sequence 24, Appl |
| 15 | 20 | 100.0 | 20 | 4 | US-09-171-425-5 | Sequence 5, Appli |
| 16 | 20 | 100.0 | 20 | 4 | US-09-171-425-14 | Sequence 14, Appl |
| 17 | 20 | 100.0 | 29 | 4 | US-08-848-229-2 | Sequence 2, Appli |
| 18 | 18.4 | 92.0 | 20 | 4 | US-08-738-652-3 | Sequence 3, Appli |
| 19 | 18.4 | 92.0 | 20 | 4 | US-08-738-652-9 | Sequence 9, Appli |
| 20 | 18.4 | 92.0 | 20 | 4 | US-08-738-652-40 | Sequence 40, Appl |
| 21 | 18.4 | 92.0 | 20 | 4 | US-08-738-652-43 | Sequence 43, Appl |
| 22 | 18.4 | 92.0 | 20 | 4 | US-08-738-652-45 | Sequence 45, Appl |
| 23 | 18.4 | 92.0 | 20 | 4 | US-08-738-652-46 | Sequence 46, Appl |
| 24 | 18.4 | 92.0 | 20 | 4 | US-08-738-652-53 | Sequence 53, Appl |
| 25 | 18.4 | 92.0 | 20 | 4 | US-09-030-701-5 | Sequence 5, Appli |
| 26 | 18.4 | 92.0 | 20 | 4 | US-09-286-098-45 | Sequence 45, Appl |
| 27 | 18.4 | 92.0 | 20 | 4 | US-09-286-098-48 | Sequence 48, Appl |
| 28 | 18.4 | 92.0 | 20 | 4 | US-09-286-098-49 | Sequence 49, Appl |
| 29 | 18.4 | 92.0 | 20 | 4 | US-09-286-098-50 | Sequence 50, Appl |
| 30 | 18.4 | 92.0 | 20 | 4 | US-09-286-098-56 | Sequence 56, Appl |
| 31 | 18.4 | 92.0 | 20 | 4 | US-09-286-098-57 | Sequence 57, Appl |
| 32 | 18.4 | 92.0 | 20 | 4 | US-08-960-774-3 | Sequence 3, Appli |
| 33 | 18.4 | 92.0 | 20 | 4 | US-08-960-774-9 | Sequence 9, Appli |
| 34 | 18.4 | 92.0 | 20 | 4 | US-08-960-774-35 | Sequence 35, Appl |
| 35 | 18.4 | 92.0 | 20 | 4 | US-08-960-774-38 | Sequence 38, Appl |
| 36 | 18.4 | 92.0 | 20 | 4 | US-08-960-774-39 | Sequence 39, Appl |
| 37 | 18.4 | 92.0 | 20 | 4 | US-08-960-774-87 | Sequence 87, Appl |
| 38 | 18.4 | 92.0 | 20 | 4 | US-08-960-774-89 | Sequence 89, Appl |
| 39 | 18.4 | 92.0 | 20 | 4 | US-09-082-649B-71 | Sequence 71, Appl |
| 40 | 18.4 | 92.0 | 20 | 4 | US-09-325-193A-38 | Sequence 38, Appl |
| 41 | 18.4 | 92.0 | 20 | 4 | US-09-325-193A-42 | Sequence 42, Appl |
| 42 | 18.4 | 92.0 | 20 | 4 | US-09-325-193A-43 | Sequence 43, Appl |
| 43 | 18.4 | 92.0 | 20 | 4 | US-09-325-193A-44 | Sequence 44, Appl |
| 44 | 18.4 | 92.0 | 20 | 4 | US-09-325-193A-49 | Sequence 49, Appl |
| 45 | 18.4 | 92.0 | 20 | 4 | US-09-191-170-40 | Sequence 40, Appl |

ALIGNMENTS

RESULT 1
US-09-133-774-11
; Sequence 11, Application US/09133774B
; Patent No. 5962636
; GENERAL INFORMATION:
; APPLICANT: Bachmaier, Kurt
; APPLICANT: Hessel, Andrew J.
; APPLICANT: Neu M.D., Nikolaus
; APPLICANT: Penninger, Josef M.
; TITLE OF INVENTION: No. 5962636el Peptides Capable of Modulating Inflammatory Hear
; TITLE OF INVENTION: Disease
; FILE REFERENCE: A-536
; CURRENT APPLICATION NUMBER: US/09/133,774B
; CURRENT FILING DATE: 1998-08-12
; NUMBER OF SEQ ID NOS: 26
; SOFTWARE: PatentIn Ver. 2.0
; SEQ ID NO 11
; LENGTH: 20
; TYPE: DNA
; ORGANISM: Chlamydia trachomatis
; FEATURE:
; OTHER INFORMATION: An oligonucleotide derived from the DNA encoding a
; OTHER INFORMATION: 60 kDa cysteine rich outer membrane protein from
; OTHER INFORMATION: Chlamydia trachomatis.
US-09-133-774-11

Query Match 100.0%; Score 20; DB 2; Length 20;
Best Local Similarity 100.0%; Pred. No. 0.2;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 TCCATGACGTTCCTGATGCT 20
||||||||||||||||||||
Db 1 TCCATGACGTTCCTGATGCT 20

RESULT 2
US-08-386-063-25
; Sequence 25, Application US/08386063
; Patent No. 6008200
; GENERAL INFORMATION:
; APPLICANT: Arthur M. Krieg, M.D.
; TITLE OF INVENTION: IMMUNOMODULATORY OLIGONUCLEOTIDES
; NUMBER OF SEQUENCES: 27
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: LAHIVE & COCKFIELD
; STREET: 60 STATE STREET, SUITE 510
; CITY: BOSTON
; STATE: MASSACHUSETTS
; COUNTRY: USA
; ZIP: 02109-1875

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;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  ASCII text
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/386,063
;      FILING DATE:
;      CLASSIFICATION:  424
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  ARNOLD, BETH E.
;      REGISTRATION NUMBER:  35,430
;      REFERENCE/DOCKET NUMBER:  UIZ-013CP
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  (617)227-7400
;      TELEFAX:  (617)227-5941
;  INFORMATION FOR SEQ ID NO:  25:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  20 base pairs
;      TYPE:  nucleic acid
;      STRANDEDNESS:  single
;      TOPOLOGY:  linear
;    MOLECULE TYPE:  DNA
US-08-386-063-25

  Query Match             100.0%;  Score 20;  DB 3;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 0.2;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGACGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATGACGTTCCTGATGCT 20


RESULT 3
US-09-303-862-11
; Sequence 11, Application US/09303862
; Patent No. 6034230
; GENERAL INFORMATION:
;  APPLICANT: Bachmaier, Kurt
;  APPLICANT: Hessel, Andrew J.
;  APPLICANT: Neu M.D., Nikolaus
;  APPLICANT: Penninger, Josef M.
;  TITLE OF INVENTION: No. 6034230el Peptides Capable of Modulating Inflammatory Heart
;  TITLE OF INVENTION: Disease
;  FILE REFERENCE: A-536
;  CURRENT APPLICATION NUMBER: US/09/303,862
;  CURRENT FILING DATE: 1999-05-03
;  EARLIER APPLICATION NUMBER: 09/133,774
;  EARLIER FILING DATE: 1998-08-12
;  NUMBER OF SEQ ID NOS: 26
;  SOFTWARE: PatentIn Ver. 2.0
; SEQ ID NO 11
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Chlamydia trachomatis
;   FEATURE:
;   OTHER INFORMATION: An oligonucleotide derived from the DNA encoding a
;   OTHER INFORMATION: 60 kDa cysteine rich outer membrane protein from
;   OTHER INFORMATION: Chlamydia trachomatis.
US-09-303-862-11

  Query Match             100.0%;  Score 20;  DB 3;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 0.2;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGACGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATGACGTTCCTGATGCT 20


RESULT 4
US-08-386-063-25
; Sequence 25, Application US/08386063
; Patent No. 6194388
;  GENERAL INFORMATION:
;    APPLICANT:  Arthur M. Krieg, M.D.
;    TITLE OF INVENTION:  IMMUNOMODULATORY OLIGONUCLEOTIDES
;    NUMBER OF SEQUENCES:  27
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  LAHIVE & COCKFIELD
;      STREET:  60 STATE STREET, SUITE 510
;      CITY:  BOSTON
;      STATE:  MASSACHUSETTS
;      COUNTRY:  USA
;      ZIP:  02109-1875
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  ASCII text
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/386,063
;      FILING DATE:
;      CLASSIFICATION:
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  ARNOLD, BETH E.
;      REGISTRATION NUMBER:  35,430
;      REFERENCE/DOCKET NUMBER:  UIZ-013CP
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  (617)227-7400
;      TELEFAX:  (617)227-5941
;  INFORMATION FOR SEQ ID NO:  25:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  20 base pairs
;      TYPE:  nucleic acid
;      STRANDEDNESS:  single
;      TOPOLOGY:  linear
;    MOLECULE TYPE:  DNA
US-08-386-063-25

  Query Match             100.0%;  Score 20;  DB 4;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 0.2;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGACGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATGACGTTCCTGATGCT 20


RESULT 5
US-08-738-652-7
; Sequence 7, Application US/08738652B
; Patent No. 6207646
; GENERAL INFORMATION:
;  APPLICANT: Krieg, Arthur M.
;  TITLE OF INVENTION: Immunostimulatory Nucleic Acid Molecules
;  FILE REFERENCE: C1039/7004 HCL
;  CURRENT APPLICATION NUMBER: US/08/738,652B
;  CURRENT FILING DATE: 1996-10-30
;  EARLIER APPLICATION NUMBER: US 08/276,358
;  EARLIER FILING DATE: 1994-07-15
;  EARLIER APPLICATION NUMBER: US 08/386,063
;  EARLIER FILING DATE: 1995-02-07
;  NUMBER OF SEQ ID NOS: 55
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 7
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic oligonucleotide
US-08-738-652-7

  Query Match             100.0%;  Score 20;  DB 4;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 0.2;
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  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGACGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATGACGTTCCTGATGCT 20


RESULT 6
US-08-738-652-35
; Sequence 35, Application US/08738652B
; Patent No. 6207646
; GENERAL INFORMATION:
;  APPLICANT: Krieg, Arthur M.
;  TITLE OF INVENTION: Immunostimulatory Nucleic Acid Molecules
;  FILE REFERENCE: C1039/7004 HCL
;  CURRENT APPLICATION NUMBER: US/08/738,652B
;  CURRENT FILING DATE: 1996-10-30
;  EARLIER APPLICATION NUMBER: US 08/276,358
;  EARLIER FILING DATE: 1994-07-15
;  EARLIER APPLICATION NUMBER: US 08/386,063
;  EARLIER FILING DATE: 1995-02-07
;  NUMBER OF SEQ ID NOS: 55
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 35
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic oligonucleotide
US-08-738-652-35

  Query Match             100.0%;  Score 20;  DB 4;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 0.2;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGACGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATGACGTTCCTGATGCT 20


RESULT 7
US-08-738-652-44
; Sequence 44, Application US/08738652B
; Patent No. 6207646
; GENERAL INFORMATION:
;  APPLICANT: Krieg, Arthur M.
;  TITLE OF INVENTION: Immunostimulatory Nucleic Acid Molecules
;  FILE REFERENCE: C1039/7004 HCL
;  CURRENT APPLICATION NUMBER: US/08/738,652B
;  CURRENT FILING DATE: 1996-10-30
;  EARLIER APPLICATION NUMBER: US 08/276,358
;  EARLIER FILING DATE: 1994-07-15
;  EARLIER APPLICATION NUMBER: US 08/386,063
;  EARLIER FILING DATE: 1995-02-07
;  NUMBER OF SEQ ID NOS: 55
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 44
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic oligonucleotide
US-08-738-652-44

  Query Match             100.0%;  Score 20;  DB 4;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 0.2;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGACGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATGACGTTCCTGATGCT 20


RESULT 8
US-08-738-652-54
; Sequence 54, Application US/08738652B
; Patent No. 6207646
; GENERAL INFORMATION:
;  APPLICANT: Krieg, Arthur M.
;  TITLE OF INVENTION: Immunostimulatory Nucleic Acid Molecules
;  FILE REFERENCE: C1039/7004 HCL
;  CURRENT APPLICATION NUMBER: US/08/738,652B
;  CURRENT FILING DATE: 1996-10-30
;  EARLIER APPLICATION NUMBER: US 08/276,358
;  EARLIER FILING DATE: 1994-07-15
;  EARLIER APPLICATION NUMBER: US 08/386,063
;  EARLIER FILING DATE: 1995-02-07
;  NUMBER OF SEQ ID NOS: 55
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 54
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic oligonucleotide
US-08-738-652-54

  Query Match             100.0%;  Score 20;  DB 4;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 0.2;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGACGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATGACGTTCCTGATGCT 20


RESULT 9
US-09-286-098-24
; Sequence 24, Application US/09286098
; Patent No. 6218371
; GENERAL INFORMATION:
;  APPLICANT: Krieg, Arthur M.
;  APPLICANT: Weiner, George
;  TITLE OF INVENTION: Methods and Products for Stimulating the
;  TITLE OF INVENTION: Immune System Using Immunotherapeutic Oligonucleotides and
;  TITLE OF INVENTION: Cytokines
;  FILE REFERENCE: C1039/7026/HCL
;  CURRENT APPLICATION NUMBER: US/09/286,098
;  CURRENT FILING DATE: 1999-04-02
;  EARLIER APPLICATION NUMBER: US 60/080,729
;  EARLIER FILING DATE: 1998-04-03
;  NUMBER OF SEQ ID NOS: 105
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 24
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic Sequence
US-09-286-098-24

  Query Match             100.0%;  Score 20;  DB 4;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 0.2;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGACGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATGACGTTCCTGATGCT 20


RESULT 10
US-08-960-774-7
; Sequence 7, Application US/08960774
; Patent No. 6239116
;  GENERAL INFORMATION:
;    APPLICANT:  Krieg et al.,
```

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;    TITLE OF INVENTION:  IMMUNOSTIMULATORY NUCLEIC ACID MOLECULES
;    NUMBER OF SEQUENCES:  111
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Fish & Richardson P.C.
;      STREET:  4225 Executive Square, Suite 1400
;      CITY:  La Jolla
;      STATE:  CA
;      COUNTRY:  USA
;      ZIP:  92037
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  ASCII text
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/960,774
;      FILING DATE:  30-October-1997
;      CLASSIFICATION:  514
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  U.S. Serial No. 6239116  08/738,652
;      FILING DATE:  October 30, 1996
;      CLASSIFICATION:  514
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Haile, Lisa A.
;      REGISTRATION NUMBER:  38,347
;      REFERENCE/DOCKET NUMBER:  08918/012001
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  619/678-5070
;      TELEFAX:  619/678-5099
;  INFORMATION FOR SEQ ID NO:  7:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  20 base pairs
;      TYPE:  nucleic acid
;      STRANDEDNESS:  single
;      TOPOLOGY:  linear
;    MOLECULE TYPE:  cDNA
US-08-960-774-7

  Query Match             100.0%;  Score 20;  DB 4;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 0.2;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGACGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATGACGTTCCTGATGCT 20


RESULT 11
US-09-082-649B-68
; Sequence 68, Application US/09082649B
; Patent No. 6339068
; GENERAL INFORMATION:
;  APPLICANT:  Davis, Heather L.
;  APPLICANT:  Krieg, Arthur M.
;  APPLICANT:  Schorr, Joachim
;  APPLICANT:  Wu, Tong
;  TITLE OF INVENTION:  Vectors and Methods for Immunization or
;  TITLE OF INVENTION:  Therapeutic Protocols
;  FILE REFERENCE:  C1039/7009
;  CURRENT APPLICATION NUMBER: US/09/082,649B
;  CURRENT FILING DATE:  1998-05-20
;  PRIOR APPLICATION NUMBER:  US 60/047,233
;  PRIOR FILING DATE:  1997-05-20
;  PRIOR APPLICATION NUMBER:  US 60/047,209
;  PRIOR FILING DATE:  1997-05-20
;  NUMBER OF SEQ ID NOS:  85
;  SOFTWARE:  FastSEQ for Windows Version 3.0
; SEQ ID NO 68
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: synthetic oligonucleotide
;   NAME/KEY: misc_feature
;   LOCATION: (0)...(0)
;   OTHER INFORMATION: Has a phosphodiester backbone.
US-09-082-649B-68

  Query Match             100.0%;  Score 20;  DB 4;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 0.2;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGACGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATGACGTTCCTGATGCT 20


RESULT 12
US-09-082-649B-79
; Sequence 79, Application US/09082649B
; Patent No. 6339068
; GENERAL INFORMATION:
;  APPLICANT:  Davis, Heather L.
;  APPLICANT:  Krieg, Arthur M.
;  APPLICANT:  Schorr, Joachim
;  APPLICANT:  Wu, Tong
;  TITLE OF INVENTION:  Vectors and Methods for Immunization or
;  TITLE OF INVENTION:  Therapeutic Protocols
;  FILE REFERENCE:  C1039/7009
;  CURRENT APPLICATION NUMBER: US/09/082,649B
;  CURRENT FILING DATE:  1998-05-20
;  PRIOR APPLICATION NUMBER:  US 60/047,233
;  PRIOR FILING DATE:  1997-05-20
;  PRIOR APPLICATION NUMBER:  US 60/047,209
;  PRIOR FILING DATE:  1997-05-20
;  NUMBER OF SEQ ID NOS:  85
;  SOFTWARE:  FastSEQ for Windows Version 3.0
; SEQ ID NO 79
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: synthetic oligonucleotide
US-09-082-649B-79

  Query Match             100.0%;  Score 20;  DB 4;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 0.2;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGACGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATGACGTTCCTGATGCT 20


RESULT 13
US-09-325-193A-19
; Sequence 19, Application US/09325193A
; Patent No. 6406705
; GENERAL INFORMATION:
;  APPLICANT:  Davis, Heather L.
;  APPLICANT:  Schorr, Joachim
;  APPLICANT:  Krieg, Arthur M.
;  TITLE OF INVENTION:  Use of Nucleic Acids Containing
;  TITLE OF INVENTION:  Unmethylated CpG Dinucleotide as an Adjuvant
;  FILE REFERENCE:  C1039/7025/HCL
;  CURRENT APPLICATION NUMBER: US/09/325,193A
;  CURRENT FILING DATE:  1999-06-03
;  PRIOR APPLICATION NUMBER:  US 09/154,614
;  PRIOR FILING DATE:  1998-09-16
;  PRIOR APPLICATION NUMBER:  PCT/US98/04703
;  PRIOR FILING DATE:  1998-03-10
;  PRIOR APPLICATION NUMBER:  US 60/040,376
;  PRIOR FILING DATE:  1997-03-10
;  NUMBER OF SEQ ID NOS:  98
;  SOFTWARE:  FastSEQ for Windows Version 3.0
; SEQ ID NO 19
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; LENGTH: 20
; TYPE: DNA
; ORGANISM: Artificial Sequence
; FEATURE:
; OTHER INFORMATION: Synthetic Oligonucleotide
US-09-325-193A-19

Query Match 100.0%; Score 20; DB 4; Length 20;
Best Local Similarity 100.0%; Pred. No. 0.2;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 TCCATGACGTTCCTGATGCT 20
||||||||||||||||||||
Db 1 TCCATGACGTTCCTGATGCT 20

RESULT 14
US-09-191-170-24
; Sequence 24, Application US/09191170
; Patent No. 6429199
; GENERAL INFORMATION:
; APPLICANT: Krieg, Arthur M.
; APPLICANT: Hartmann, Gunther
; TITLE OF INVENTION: Immunostimulatory Nucleic Acid Molecules
; TITLE OF INVENTION: for Activating Dendritic Cells
; FILE REFERENCE: C1039/7017
; CURRENT APPLICATION NUMBER: US/09/191,170
; CURRENT FILING DATE: 1998-11-13
; EARLIER APPLICATION NUMBER: US 08/960,774
; EARLIER FILING DATE: 1997-10-30
; EARLIER APPLICATION NUMBER: US 08/738,652
; EARLIER FILING DATE: 1996-10-30
; EARLIER APPLICATION NUMBER: US 08/386,063
; EARLIER FILING DATE: 1995-02-07
; EARLIER APPLICATION NUMBER: US 08/276,358
; EARLIER FILING DATE: 1994-07-15
; NUMBER OF SEQ ID NOS: 99
; SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 24
; LENGTH: 20
; TYPE: DNA
; ORGANISM: Artificial Sequence
; FEATURE:
; OTHER INFORMATION: synthetic oligonucleotide
US-09-191-170-24

Query Match 100.0%; Score 20; DB 4; Length 20;
Best Local Similarity 100.0%; Pred. No. 0.2;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 TCCATGACGTTCCTGATGCT 20
||||||||||||||||||||
Db 1 TCCATGACGTTCCTGATGCT 20

RESULT 15
US-09-171-425-5
; Sequence 5, Application US/09171425A
; Patent No. 6465438
; GENERAL INFORMATION:
; APPLICANT: Schorr, Joachim
; APPLICANT: Baker, Henry J.
; APPLICANT: Smith, Bruce F.
; TITLE OF INVENTION: NUCLEIC ACID VACCINATION FOR PARVOVIRAL INFECTIONS
; FILE REFERENCE: 08909/003001
; CURRENT APPLICATION NUMBER: US/09/171,425A
; CURRENT FILING DATE: 1998-10-19
; EARLIER APPLICATION NUMBER: PCT/EP97/01943
; EARLIER FILING DATE: 1996-04-19
; NUMBER OF SEQ ID NOS: 14
; SOFTWARE: FastSEQ for Windows Version 4.0
; SEQ ID NO 5
; LENGTH: 20
; TYPE: DNA
; ORGANISM: Artificial Sequence
; FEATURE:
; OTHER INFORMATION: Synthetically generated oligonucleotides
US-09-171-425-5

Query Match 100.0%; Score 20; DB 4; Length 20;
Best Local Similarity 100.0%; Pred. No. 0.2;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 TCCATGACGTTCCTGATGCT 20
||||||||||||||||||||
Db 1 TCCATGACGTTCCTGATGCT 20

Search completed: March 2, 2003, 00:43:54
Job time : 41 secs

GenCore version 5.1.4_p5_4578


OM nucleic - nucleic search, using sw model

Run on: March 1, 2003, 22:56:16 ; Search time 43.5 Seconds
(without alignments)
286.721 Million cell updates/sec

Title: US-09-818-918-44
Perfect score: 20
Sequence: 1 tccatgacgttcctgatgct 20

Scoring table: IDENTITY_NUC
Gapop 10.0 , Gapext 1.0

Searched: 460893 seqs, 311809382 residues

Total number of hits satisfying chosen parameters: 282390

Minimum DB seq length: 0
Maximum DB seq length: 100

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : Published_Applications_NA:*
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2: /cgn2_6/ptodata/2/pubpna/PCT_NEW_PUB.seq:*
3: /cgn2_6/ptodata/2/pubpna/US06_NEW_PUB.seq:*
4: /cgn2_6/ptodata/2/pubpna/US06_PUBCOMB.seq:*
5: /cgn2_6/ptodata/2/pubpna/US07_NEW_PUB.seq:*
6: /cgn2_6/ptodata/2/pubpna/PCTUS_PUBCOMB.seq:*
7: /cgn2_6/ptodata/2/pubpna/US08_NEW_PUB.seq:*
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11: /cgn2_6/ptodata/2/pubpna/US10_NEW_PUB.seq:*
12: /cgn2_6/ptodata/2/pubpna/US10_PUBCOMB.seq:*
13: /cgn2_6/ptodata/2/pubpna/US60_NEW_PUB.seq:*
14: /cgn2_6/ptodata/2/pubpna/US60_PUBCOMB.seq:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

| Result No. | Score | % Query Match | Length | DB | ID | Description |
|---|---|---|---|---|---|---|
| 1 | 20 | 100.0 | 20 | 9 | US-09-800-266A-19 | Sequence 19, Appl |
| 2 | 20 | 100.0 | 20 | 9 | US-09-846-091-4 | Sequence 4, Appli |
| 3 | 20 | 100.0 | 20 | 9 | US-09-895-007A-19 | Sequence 19, Appl |
| 4 | 20 | 100.0 | 20 | 9 | US-10-023-909A-19 | Sequence 19, Appl |
| 5 | 20 | 100.0 | 20 | 9 | US-09-920-313-19 | Sequence 19, Appl |
| 6 | 20 | 100.0 | 20 | 9 | US-10-205-150-7 | Sequence 7, Appli |
| 7 | 20 | 100.0 | 20 | 9 | US-10-011-635A-1 | Sequence 1, Appli |
| 8 | 20 | 100.0 | 20 | 9 | US-09-415-142-25 | Sequence 25, Appl |
| 9 | 20 | 100.0 | 20 | 9 | US-09-888-326-127 | Sequence 127, App |
| 10 | 20 | 100.0 | 20 | 9 | US-09-888-326-566 | Sequence 566, App |
| 11 | 20 | 100.0 | 20 | 9 | US-09-888-326-567 | Sequence 567, App |
| 12 | 20 | 100.0 | 20 | 10 | US-09-791-500-7 | Sequence 7, Appli |
| 13 | 20 | 100.0 | 20 | 10 | US-09-824-468-24 | Sequence 24, Appl |
| 14 | 20 | 100.0 | 29 | 9 | US-09-888-326-129 | Sequence 129, App |
| 15 | 19 | 95.0 | 19 | 10 | US-09-965-116A-69 | Sequence 69, Appl |
| 16 | 19 | 95.0 | 19 | 10 | US-09-965-116A-70 | Sequence 70, Appl |
| 17 | 19 | 95.0 | 19 | 10 | US-09-965-116A-71 | Sequence 71, Appl |
| 18 | 19 | 95.0 | 20 | 9 | US-09-888-326-572 | Sequence 572, App |
| 19 | 19 | 95.0 | 20 | 9 | US-09-888-326-582 | Sequence 582, App |
| 20 | 18.4 | 92.0 | 20 | 9 | US-09-800-266A-38 | Sequence 38, Appl |
| 21 | 18.4 | 92.0 | 20 | 9 | US-09-800-266A-42 | Sequence 42, Appl |
| 22 | 18.4 | 92.0 | 20 | 9 | US-09-800-266A-43 | Sequence 43, Appl |
| 23 | 18.4 | 92.0 | 20 | 9 | US-09-800-266A-44 | Sequence 44, Appl |
| 24 | 18.4 | 92.0 | 20 | 9 | US-09-800-266A-49 | Sequence 49, Appl |
| 25 | 18.4 | 92.0 | 20 | 9 | US-09-895-007A-38 | Sequence 38, Appl |
| 26 | 18.4 | 92.0 | 20 | 9 | US-09-895-007A-42 | Sequence 42, Appl |
| 27 | 18.4 | 92.0 | 20 | 9 | US-09-895-007A-43 | Sequence 43, Appl |
| 28 | 18.4 | 92.0 | 20 | 9 | US-09-895-007A-44 | Sequence 44, Appl |
| 29 | 18.4 | 92.0 | 20 | 9 | US-09-895-007A-49 | Sequence 49, Appl |
| 30 | 18.4 | 92.0 | 20 | 9 | US-10-023-909A-38 | Sequence 38, Appl |
| 31 | 18.4 | 92.0 | 20 | 9 | US-10-023-909A-42 | Sequence 42, Appl |
| 32 | 18.4 | 92.0 | 20 | 9 | US-10-023-909A-43 | Sequence 43, Appl |
| 33 | 18.4 | 92.0 | 20 | 9 | US-10-023-909A-44 | Sequence 44, Appl |
| 34 | 18.4 | 92.0 | 20 | 9 | US-10-023-909A-49 | Sequence 49, Appl |
| 35 | 18.4 | 92.0 | 20 | 9 | US-10-074-956-2 | Sequence 2, Appli |
| 36 | 18.4 | 92.0 | 20 | 9 | US-09-920-313-38 | Sequence 38, Appl |
| 37 | 18.4 | 92.0 | 20 | 9 | US-09-920-313-42 | Sequence 42, Appl |
| 38 | 18.4 | 92.0 | 20 | 9 | US-09-920-313-43 | Sequence 43, Appl |
| 39 | 18.4 | 92.0 | 20 | 9 | US-09-920-313-44 | Sequence 44, Appl |
| 40 | 18.4 | 92.0 | 20 | 9 | US-09-920-313-49 | Sequence 49, Appl |
| c 41 | 18.4 | 92.0 | 20 | 9 | US-09-888-326-62 | Sequence 62, Appl |
| 42 | 18.4 | 92.0 | 20 | 9 | US-09-888-326-525 | Sequence 525, App |
| 43 | 18.4 | 92.0 | 20 | 9 | US-09-888-326-545 | Sequence 545, App |
| 44 | 18.4 | 92.0 | 20 | 9 | US-09-888-326-551 | Sequence 551, App |
| 45 | 18.4 | 92.0 | 20 | 9 | US-09-888-326-555 | Sequence 555, App |

ALIGNMENTS

RESULT 1
US-09-800-266A-19
; Sequence 19, Application US/09800266A
; Patent No. US20020156033A1
; GENERAL INFORMATION:
; APPLICANT: Bratzler, Robert L.
; APPLICANT: Petersen, Deanna M.
; TITLE OF INVENTION: Immunostimulatory Nucleic Acids and
; TITLE OF INVENTION: Cancer Medicament Combination Therapy for the Treatment of
; TITLE OF INVENTION: Cancer
; FILE REFERENCE: C1037/7017(HCL/MAT)
; CURRENT APPLICATION NUMBER: US/09/800,266A
; CURRENT FILING DATE: 2001-03-05
; PRIOR APPLICATION NUMBER: US 60/187,214
; PRIOR FILING DATE: 2000-03-03
; NUMBER OF SEQ ID NOS: 146
; SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 19
; LENGTH: 20
; TYPE: DNA
; ORGANISM: Artificial Sequence
; FEATURE:
; OTHER INFORMATION: Synthetic Sequence
US-09-800-266A-19

Query Match 100.0%; Score 20; DB 9; Length 20;
Best Local Similarity 100.0%; Pred. No. 0.43;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 TCCATGACGTTCCTGATGCT 20
||||||||||||||||||||
Db 1 TCCATGACGTTCCTGATGCT 20

RESULT 2
US-09-846-091-4
; Sequence 4, Application US/09846091
; Patent No. US20020165176A1
; GENERAL INFORMATION:
; APPLICANT: HAYNES, Joel R.
; APPLICANT: MACKLIN, Michael D.
; APPLICANT: PAYNE, Lendon G.

```
;  TITLE OF INVENTION: NUCLEIC ACID IMMUNIZATION
;  FILE REFERENCE: APF40
;  CURRENT APPLICATION NUMBER: US/09/846,091
;  CURRENT FILING DATE:  2001-04-30
;  PRIOR APPLICATION NUMBER: US/09/561,951
;  PRIOR FILING DATE: 2000-05-01
;  NUMBER OF SEQ ID NOS: 11
;  SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 4
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Description of Artificial Sequence: Synthetic
;   OTHER INFORMATION: Construct
US-09-846-091-4

  Query Match           100.0%;  Score 20;  DB 9;  Length 20;
  Best Local Similarity  100.0%;  Pred. No. 0.43;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGACGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATGACGTTCCTGATGCT 20


RESULT 3
US-09-895-007A-19
; Sequence 19, Application US/09895007A
; Patent No. US20020165178A1
; GENERAL INFORMATION:
;  APPLICANT: Schetter, Christian
;  APPLICANT:  Bratzler, Robert L.
;  APPLICANT:  Petersen, Deanna M.
;  TITLE OF INVENTION: IMMUNOSTIMULATORY NUCLEIC ACIDS FOR THE
;  TITLE OF INVENTION:  TREATMENT OF ANEMIA, THROMBOCYTOPENIA, AND NEUTROPENIA
;  FILE REFERENCE: C1041/7014 (AWS)
;  CURRENT APPLICATION NUMBER: US/09/895,007A
;  CURRENT FILING DATE:  2001-06-28
;  PRIOR APPLICATION NUMBER: US 60/214,368
;  PRIOR FILING DATE: 2000-06-28
;  NUMBER OF SEQ ID NOS: 133
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 19
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic oligonucleotide
US-09-895-007A-19

  Query Match           100.0%;  Score 20;  DB 9;  Length 20;
  Best Local Similarity  100.0%;  Pred. No. 0.43;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGACGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATGACGTTCCTGATGCT 20


RESULT 4
US-10-023-909A-19
; Sequence 19, Application US/10023909A
; Patent No. US20020164341A1
; GENERAL INFORMATION:
;  APPLICANT: Davis, Heather L.
;  APPLICANT:  Schorr, Joachim
;  APPLICANT:  Krieg, Arthur M.
;  TITLE OF INVENTION: Use of Nucleic Acids Containing
;  TITLE OF INVENTION:  Unmethylated CpG Dinucleotide as an Adjuvant
;  FILE REFERENCE: C1039/7058/HCL
;  CURRENT APPLICATION NUMBER: US/10/023,909A
;  CURRENT FILING DATE:  2001-12-18
;  PRIOR APPLICATION NUMBER: US 09/325,193
;  PRIOR FILING DATE: 1999-06-03
;  PRIOR APPLICATION NUMBER: US 09/154,614
;  PRIOR FILING DATE: 1998-09-16
;  PRIOR APPLICATION NUMBER: PCT/US98/04703
;  PRIOR FILING DATE: 1998-03-10
;  PRIOR APPLICATION NUMBER: US 60/040,376
;  PRIOR FILING DATE: 1997-03-10
;  NUMBER OF SEQ ID NOS: 98
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 19
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic Oligonucleotide
US-10-023-909A-19

  Query Match           100.0%;  Score 20;  DB 9;  Length 20;
  Best Local Similarity  100.0%;  Pred. No. 0.43;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGACGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATGACGTTCCTGATGCT 20


RESULT 5
US-09-920-313-19
; Sequence 19, Application US/09920313
; Publication No. US20020198165A1
; GENERAL INFORMATION:
;  APPLICANT: Bratzler, Robert L.
;  APPLICANT:  Petersen, Deanna M.
;  TITLE OF INVENTION: Nucleic Acids for the Prevention and
;  TITLE OF INVENTION:  Treatment of Gastric Ulcers
;  FILE REFERENCE: C1037/7019 (HCL/MAT)
;  CURRENT APPLICATION NUMBER: US/09/920,313
;  CURRENT FILING DATE:  2001-08-01
;  PRIOR APPLICATION NUMBER: US 60/222,248
;  PRIOR FILING DATE: 2001-08-08
;  NUMBER OF SEQ ID NOS: 148
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 19
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic Sequence
US-09-920-313-19

  Query Match           100.0%;  Score 20;  DB 9;  Length 20;
  Best Local Similarity  100.0%;  Pred. No. 0.43;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGACGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATGACGTTCCTGATGCT 20


RESULT 6
US-10-205-150-7
; Sequence 7, Application US/10205150
; Publication No. US20020197269A1
; GENERAL INFORMATION:
;  APPLICANT: LINGNAU, KAREN ET AL.
;  TITLE OF INVENTION: PHARMACEUTICAL COMPOSITION FOR IMMUNOMODULATION AND PREPARATIO
;  TITLE OF INVENTION:  OF VACCINES COMPRISING AN ANTIGEN AND AN IMMUNOGENIC OLIGODEO
;  TITLE OF INVENTION:  AND A POLYCATIONIC POLYMER AS ADJUVANTS
;  FILE REFERENCE: SONN:018US
;  CURRENT APPLICATION NUMBER: US/10/205,150
;  CURRENT FILING DATE:  2002-07-25
;  PRIOR APPLICATION NUMBER: PCT/EP01/00087
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;  PRIOR FILING DATE: 2001-01-05
;  NUMBER OF SEQ ID NOS: 9
;  SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 7
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Description of Artificial Sequence:  Synthetic
;   OTHER INFORMATION: Primer
US-10-205-150-7

  Query Match             100.0%;  Score 20;  DB 9;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 0.43;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGACGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATGACGTTCCTGATGCT 20


RESULT 7
US-10-011-635A-1
; Sequence 1, Application US/10011635A
; Publication No. US20030003579A1
; GENERAL INFORMATION:
;  APPLICANT: Kadowaki, No. US20030003579Alimitsu
;  APPLICANT:  Liu, Yong-Jun
;  TITLE OF INVENTION: Dendritic cells; Methods
;  FILE REFERENCE: DX01206
;  CURRENT APPLICATION NUMBER: US/10/011,635A
;  CURRENT FILING DATE:  2001-10-22
;  PRIOR APPLICATION NUMBER: 60/243,232
;  PRIOR FILING DATE: 2000-10-24
;  NUMBER OF SEQ ID NOS: 6
;  SOFTWARE: PatentIn version 3.1
; SEQ ID NO 1
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Sparwasser, et al. (1998) Eur. J. Immunol. 28:2045-2054.
;   FEATURE:
;   NAME/KEY: misc_feature
;   LOCATION: (1)..(20)
;   OTHER INFORMATION: From Sparwasser, et al. (1998).
;   FEATURE:
;   NAME/KEY: misc_feature
;   LOCATION: (1)..(20)
;   OTHER INFORMATION: Sparwasser, et al. (1998) Eur. J. Immunol. 28:2045-2054.
US-10-011-635A-1

  Query Match             100.0%;  Score 20;  DB 9;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 0.43;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGACGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATGACGTTCCTGATGCT 20


RESULT 8
US-09-415-142-25
; Sequence 25, Application US/09415142
; Publication No. US20030026782A1
; GENERAL INFORMATION:
;  APPLICANT: Krieg, Arthur M.
;  APPLICANT:  Klinman, Dennis
;  APPLICANT:  Steinberg, Alfred D.
;  TITLE OF INVENTION: IMMUNOMODULATORY OLIGONUCLEOTIDES
;  FILE REFERENCE: C1039/7029
;  CURRENT APPLICATION NUMBER: US/09/415,142
;  CURRENT FILING DATE:  1999-10-09
;  PRIOR APPLICATION NUMBER: US 08/386,063
;  PRIOR FILING DATE: 1995-02-07
;  NUMBER OF SEQ ID NOS: 27
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 25
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic oligonucleotide
US-09-415-142-25

  Query Match             100.0%;  Score 20;  DB 9;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 0.43;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGACGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATGACGTTCCTGATGCT 20


RESULT 9
US-09-888-326-127
; Sequence 127, Application US/09888326
; Publication No. US20030026801A1
; GENERAL INFORMATION:
;  APPLICANT: Weiner, George
;  APPLICANT:  Hartmann, Gunther
;  TITLE OF INVENTION: Methods for Enhancing Antibody-Induced
;  TITLE OF INVENTION:  Cell Lysis and Treating Cancer
;  FILE REFERENCE: C1039/7052 (AWS)
;  CURRENT APPLICATION NUMBER: US/09/888,326
;  CURRENT FILING DATE:  2001-06-22
;  PRIOR APPLICATION NUMBER: US 60/213,346
;  PRIOR FILING DATE: 2000-06-22
;  NUMBER OF SEQ ID NOS: 848
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 127
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic oligonucleotide
;   NAME/KEY: misc_feature
;   LOCATION: (0)...(0)
;   OTHER INFORMATION: phosphodiester backbone
;   NAME/KEY: misc_feature
;   LOCATION: (1)...(1)
;   OTHER INFORMATION: biotinylated at 5' end
US-09-888-326-127

  Query Match             100.0%;  Score 20;  DB 9;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 0.43;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGACGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATGACGTTCCTGATGCT 20


RESULT 10
US-09-888-326-566
; Sequence 566, Application US/09888326
; Publication No. US20030026801A1
; GENERAL INFORMATION:
;  APPLICANT: Weiner, George
;  APPLICANT:  Hartmann, Gunther
;  TITLE OF INVENTION: Methods for Enhancing Antibody-Induced
;  TITLE OF INVENTION:  Cell Lysis and Treating Cancer
;  FILE REFERENCE: C1039/7052 (AWS)
;  CURRENT APPLICATION NUMBER: US/09/888,326
;  CURRENT FILING DATE:  2001-06-22
;  PRIOR APPLICATION NUMBER: US 60/213,346
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;  PRIOR FILING DATE: 2000-06-22
;  NUMBER OF SEQ ID NOS: 848
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 566
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic oligonucleotide
;   NAME/KEY: misc_feature
;   LOCATION: (0)...(0)
;   OTHER INFORMATION: phosphodiester backbone
US-09-888-326-566

  Query Match            100.0%;  Score 20;  DB 9;  Length 20;
  Best Local Similarity  100.0%;  Pred. No. 0.43;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGACGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATGACGTTCCTGATGCT 20


RESULT 11
US-09-888-326-567
; Sequence 567, Application US/09888326
; Publication No. US20030026801A1
; GENERAL INFORMATION:
;  APPLICANT: Weiner, George
;  APPLICANT:  Hartmann, Gunther
;  TITLE OF INVENTION: Methods for Enhancing Antibody-Induced
;  TITLE OF INVENTION:  Cell Lysis and Treating Cancer
;  FILE REFERENCE: C1039/7052 (AWS)
;  CURRENT APPLICATION NUMBER: US/09/888,326
;  CURRENT FILING DATE:  2001-06-22
;  PRIOR APPLICATION NUMBER: US 60/213,346
;  PRIOR FILING DATE: 2000-06-22
;  NUMBER OF SEQ ID NOS: 848
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 567
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic oligonucleotide
;   NAME/KEY: misc_feature
;   LOCATION: (0)...(0)
;   OTHER INFORMATION: phosphorothioate backbone
US-09-888-326-567

  Query Match            100.0%;  Score 20;  DB 9;  Length 20;
  Best Local Similarity  100.0%;  Pred. No. 0.43;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGACGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATGACGTTCCTGATGCT 20


RESULT 12
US-09-791-500-7
; Sequence 7, Application US/09791500
; Patent No. US20020042387A1
; GENERAL INFORMATION:
;  APPLICANT: Raz, Eyal
;  APPLICANT:  Rachmilewitz, Daniel
;  TITLE OF INVENTION: Method for Treating Inflammatory Bowel
;  TITLE OF INVENTION:  Disease and Other Forms of Gastrointestinal Inflammation.
;  FILE REFERENCE: 6510-202US1
;  CURRENT APPLICATION NUMBER: US/09/791,500
;  CURRENT FILING DATE:  2001-02-22
;  NUMBER OF SEQ ID NOS: 39
;  SOFTWARE: FastSEQ for Windows Version 4.0
; SEQ ID NO 7
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: synthetic polynucleotide sequence
US-09-791-500-7

  Query Match            100.0%;  Score 20;  DB 10;  Length 20;
  Best Local Similarity  100.0%;  Pred. No. 0.43;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGACGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATGACGTTCCTGATGCT 20


RESULT 13
US-09-824-468-24
; Sequence 24, Application US/09824468
; Patent No. US20020064515A1
; GENERAL INFORMATION:
;  APPLICANT: Krieg, Arthur M.
;  APPLICANT:  Weiner, George
;  TITLE OF INVENTION: Methods and Products for Stimulating the
;  TITLE OF INVENTION:  Immune System Using Immunotherapeutic Oligonucleotides and
;  TITLE OF INVENTION:  Cytokines
;  FILE REFERENCE: C1039/7026/HCL
;  CURRENT APPLICATION NUMBER: US/09/824,468
;  CURRENT FILING DATE:  2001-04-02
;  PRIOR APPLICATION NUMBER: 09/286,098
;  PRIOR FILING DATE: 1999-04-02
;  NUMBER OF SEQ ID NOS: 105
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 24
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic Sequence
US-09-824-468-24

  Query Match            100.0%;  Score 20;  DB 10;  Length 20;
  Best Local Similarity  100.0%;  Pred. No. 0.43;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATGACGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATGACGTTCCTGATGCT 20


RESULT 14
US-09-888-326-129
; Sequence 129, Application US/09888326
; Publication No. US20030026801A1
; GENERAL INFORMATION:
;  APPLICANT: Weiner, George
;  APPLICANT:  Hartmann, Gunther
;  TITLE OF INVENTION: Methods for Enhancing Antibody-Induced
;  TITLE OF INVENTION:  Cell Lysis and Treating Cancer
;  FILE REFERENCE: C1039/7052 (AWS)
;  CURRENT APPLICATION NUMBER: US/09/888,326
;  CURRENT FILING DATE:  2001-06-22
;  PRIOR APPLICATION NUMBER: US 60/213,346
;  PRIOR FILING DATE: 2000-06-22
;  NUMBER OF SEQ ID NOS: 848
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 129
;   LENGTH: 29
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic oligonucleotide
```

; NAME/KEY: misc_feature
; LOCATION: (0)...(0)
; OTHER INFORMATION: chimeric phosphorothioate/phosphodiester backbone
; OTHER INFORMATION: with phosphodiester on 5' end
; NAME/KEY: misc_feature
; LOCATION: (1)...(1)
; OTHER INFORMATION: biotinylated at 5' end
US-09-888-326-129

Query Match 100.0%; Score 20; DB 9; Length 29;
Best Local Similarity 100.0%; Pred. No. 0.45;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 TCCATGACGTTCCTGATGCT 20
||||||||||||||||||||
Db 6 TCCATGACGTTCCTGATGCT 25

RESULT 15
US-09-965-116A-69
; Sequence 69, Application US/09965116A
; Patent No. US20020137714A1
; GENERAL INFORMATION:
; APPLICANT: Kandimalla, Ekambar R.
; APPLICANT: Zhao, Qiuyan
; APPLICANT: Yu, Dong
; APPLICANT: Agrawal, Sudhir
; TITLE OF INVENTION: Modulation of Immunostimulatory Activity of Immunostimulatory
; TITLE OF INVENTION: Modified oligodeoxynucleotide phosphorothioate Analogs by
; TITLE OF INVENTION: Positional Chemical Changes
; FILE REFERENCE: HYZ-479CP (47508.577)
; CURRENT APPLICATION NUMBER: US/09/965,116A
; CURRENT FILING DATE: 2002-03-08
; PRIOR APPLICATION NUMBER: US 09/712,898
; PRIOR FILING DATE: 2000-11-15
; PRIOR APPLICATION NUMBER: US 60/235,452
; PRIOR FILING DATE: 2000-09-26
; PRIOR APPLICATION NUMBER: US 60/235,453
; PRIOR FILING DATE: 2000-09-26
; NUMBER OF SEQ ID NOS: 112
; SOFTWARE: FastSEQ for Windows Version 4.0
; SEQ ID NO 69
; LENGTH: 19
; TYPE: DNA
; ORGANISM: Artificial Sequence
; FEATURE:
; OTHER INFORMATION: modified linkage of oligodeoxynucleotide phosphorothioate
US-09-965-116A-69

Query Match 95.0%; Score 19; DB 10; Length 19;
Best Local Similarity 100.0%; Pred. No. 1.4;
Matches 19; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 TCCATGACGTTCCTGATGC 19
|||||||||||||||||||
Db 1 TCCATGACGTTCCTGATGC 19

Search completed: March 2, 2003, 00:47:02
Job time : 44.5 secs

GenCore version 5.1.4_p5_4578


OM nucleic - nucleic search, using sw model

Run on: March 1, 2003, 20:23:56 ; Search time 363.75 Seconds
(without alignments)
1600.154 Million cell updates/sec

Title: US-09-818-918-45
Perfect score: 20
Sequence: 1 tccataacgttcctgatgct 20

Scoring table: IDENTITY_NUC
Gapop 10.0 , Gapext 1.0

Searched: 2054640 seqs, 14551402878 residues

Total number of hits satisfying chosen parameters: 4109280

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : GenEmbl:*
1: gb_ba:*
2: gb_htg:*
3: gb_in:*
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26: em_ro:*
27: em_sts:*
28: em_un:*
29: em_vi:*
30: em_htg_hum:*
31: em_htg_inv:*
32: em_htg_other:*
33: em_htg_mus:*
34: em_htg_pln:*
35: em_htg_rod:*
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37: em_htg_vrt:*
38: em_sy:*
39: em_htgo_hum:*
40: em_htgo_mus:*
41: em_htgo_other:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

| Result No. | Score | % Query Match | Length | DB | ID | Description |
|---|---|---|---|---|---|---|
| 1 | 20 | 100.0 | 20 | 6 | AR140444 | AR140444 Sequence |
| 2 | 20 | 100.0 | 20 | 6 | AR140486 | AR140486 Sequence |
| 3 | 20 | 100.0 | 20 | 6 | AR146337 | AR146337 Sequence |
| 4 | 20 | 100.0 | 20 | 6 | AR154674 | AR154674 Sequence |
| 5 | 20 | 100.0 | 20 | 6 | AX104585 | AX104585 Sequence |
| 6 | 20 | 100.0 | 20 | 6 | AX105178 | AX105178 Sequence |
| 7 | 20 | 100.0 | 20 | 6 | AX351748 | AX351748 Sequence |
| 8 | 20 | 100.0 | 20 | 6 | AX351814 | AX351814 Sequence |
| 9 | 20 | 100.0 | 20 | 6 | AX351837 | AX351837 Sequence |
| 10 | 20 | 100.0 | 20 | 6 | AX351865 | AX351865 Sequence |
| 11 | 20 | 100.0 | 20 | 6 | AX351886 | AX351886 Sequence |
| 12 | 20 | 100.0 | 20 | 6 | AX351911 | AX351911 Sequence |
| 13 | 20 | 100.0 | 20 | 6 | AX355517 | AX355517 Sequence |
| 14 | 20 | 100.0 | 20 | 6 | AX455600 | AX455600 Sequence |
| 15 | 20 | 100.0 | 20 | 6 | AX465343 | AX465343 Sequence |
| 16 | 20 | 100.0 | 20 | 6 | BD009051 | BD009051 Immunosti |
| 17 | 20 | 100.0 | 24 | 6 | AX351932 | AX351932 Sequence |
| 18 | 20 | 100.0 | 26 | 6 | AX351755 | AX351755 Sequence |
| 19 | 20 | 100.0 | 28 | 6 | AX351953 | AX351953 Sequence |
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| 21 | 18.4 | 92.0 | 20 | 6 | A89783 | A89783 Sequence 5 |
| 22 | 18.4 | 92.0 | 20 | 6 | A90869 | A90869 Sequence 4 |
| 23 | 18.4 | 92.0 | 20 | 6 | A90870 | A90870 Sequence 5 |
| 24 | 18.4 | 92.0 | 20 | 6 | A93512 | A93512 Sequence 5 |
| 25 | 18.4 | 92.0 | 20 | 6 | A93521 | A93521 Sequence 14 |
| 26 | 18.4 | 92.0 | 20 | 6 | AR078394 | AR078394 Sequence |
| 27 | 18.4 | 92.0 | 20 | 6 | AR096710 | AR096710 Sequence |
| 28 | 18.4 | 92.0 | 20 | 6 | AR135054 | AR135054 Sequence |
| 29 | 18.4 | 92.0 | 20 | 6 | AR140448 | AR140448 Sequence |
| 30 | 18.4 | 92.0 | 20 | 6 | AR140476 | AR140476 Sequence |
| 31 | 18.4 | 92.0 | 20 | 6 | AR140485 | AR140485 Sequence |
| 32 | 18.4 | 92.0 | 20 | 6 | AR140495 | AR140495 Sequence |
| 33 | 18.4 | 92.0 | 20 | 6 | AR146312 | AR146312 Sequence |
| 34 | 18.4 | 92.0 | 20 | 6 | AR154678 | AR154678 Sequence |
| 35 | 18.4 | 92.0 | 20 | 6 | AR154759 | AR154759 Sequence |
| 36 | 18.4 | 92.0 | 20 | 6 | AR182896 | AR182896 Sequence |
| 37 | 18.4 | 92.0 | 20 | 6 | AR182907 | AR182907 Sequence |
| 38 | 18.4 | 92.0 | 20 | 6 | AX023425 | AX023425 Sequence |
| 39 | 18.4 | 92.0 | 20 | 6 | AX040172 | AX040172 Sequence |
| 40 | 18.4 | 92.0 | 20 | 6 | AX104566 | AX104566 Sequence |
| 41 | 18.4 | 92.0 | 20 | 6 | AX104614 | AX104614 Sequence |
| 42 | 18.4 | 92.0 | 20 | 6 | AX104673 | AX104673 Sequence |
| 43 | 18.4 | 92.0 | 20 | 6 | AX105185 | AX105185 Sequence |
| 44 | 18.4 | 92.0 | 20 | 6 | AX135638 | AX135638 Sequence |
| 45 | 18.4 | 92.0 | 20 | 6 | AX166344 | AX166344 Sequence |

ALIGNMENTS

RESULT 1
AR140444
LOCUS AR140444 20 bp DNA linear PAT 16-JUN-2001
DEFINITION Sequence 3 from patent US 6207646.
ACCESSION AR140444
VERSION AR140444.1 GI:14482940
KEYWORDS .
SOURCE Unknown.
ORGANISM Unknown.
Unclassified.
REFERENCE 1 (bases 1 to 20)
AUTHORS Krieg,A.M., Kline,J., Klinman,D. and Steinberg,A.D.
TITLE Immunostimulatory nucleic acid molecules
JOURNAL Patent: US 6207646-A 3 27-MAR-2001;
FEATURES Location/Qualifiers

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                    /organism="unknown"
BASE COUNT        4 a      6 c      3 g      7 t
ORIGIN

  Query Match             100.0%;  Score 20;  DB 6;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 2;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATAACGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATAACGTTCCTGATGCT 20


RESULT 2
AR140486
LOCUS       AR140486                  20 bp    DNA     linear   PAT 16-JUN-2001
DEFINITION  Sequence 45 from patent US 6207646.
ACCESSION   AR140486
VERSION     AR140486.1  GI:14482982
KEYWORDS    .
SOURCE      Unknown.
  ORGANISM  Unknown.
            Unclassified.
REFERENCE   1  (bases 1 to 20)
  AUTHORS   Krieg,A.M., Kline,J., Klinman,D. and Steinberg,A.D.
  TITLE     Immunostimulatory nucleic acid molecules
  JOURNAL   Patent: US 6207646-A 45 27-MAR-2001;
FEATURES             Location/Qualifiers
     source          1. .20
                     /organism="unknown"
BASE COUNT        4 a      6 c      3 g      7 t
ORIGIN

  Query Match             100.0%;  Score 20;  DB 6;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 2;
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Qy      1 TCCATAACGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATAACGTTCCTGATGCT 20


RESULT 3
AR146337
LOCUS       AR146337                  20 bp    DNA     linear   PAT 08-AUG-2001
DEFINITION  Sequence 49 from patent US 6218371.
ACCESSION   AR146337
VERSION     AR146337.1  GI:15109526
KEYWORDS    .
SOURCE      Unknown.
  ORGANISM  Unknown.
            Unclassified.
REFERENCE   1  (bases 1 to 20)
  AUTHORS   Krieg,A.M. and Weiner,G.
  TITLE     Methods and products for stimulating the immune system using
            immunotherapeutic oligonucleotides and cytokines
  JOURNAL   Patent: US 6218371-A 49 17-APR-2001;
FEATURES             Location/Qualifiers
     source          1. .20
                     /organism="unknown"
BASE COUNT        4 a      6 c      3 g      7 t
ORIGIN

  Query Match             100.0%;  Score 20;  DB 6;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 2;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATAACGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATAACGTTCCTGATGCT 20


RESULT 4
AR154674
LOCUS       AR154674                  20 bp    DNA     linear   PAT 08-AUG-2001
DEFINITION  Sequence 3 from patent US 6239116.
ACCESSION   AR154674
VERSION     AR154674.1  GI:15122727
KEYWORDS    .
SOURCE      Unknown.
  ORGANISM  Unknown.
            Unclassified.
REFERENCE   1  (bases 1 to 20)
  AUTHORS   Krieg,A.M. and Kline,J.N.
  TITLE     Immunostimulatory nucleic acid molecules
  JOURNAL   Patent: US 6239116-A 3 29-MAY-2001;
FEATURES             Location/Qualifiers
     source          1. .20
                     /organism="unknown"
BASE COUNT        4 a      6 c      3 g      7 t
ORIGIN

  Query Match             100.0%;  Score 20;  DB 6;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 2;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATAACGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATAACGTTCCTGATGCT 20


RESULT 5
AX104585
LOCUS       AX104585                  20 bp    DNA     linear   PAT 30-APR-2001
DEFINITION  Sequence 777 from Patent WO0122972.
ACCESSION   AX104585
VERSION     AX104585.1  GI:13920782
KEYWORDS    .
SOURCE      synthetic construct.
  ORGANISM  synthetic construct
            artificial sequences.
REFERENCE   1  (bases 1 to 20)
  AUTHORS   Krieg,A.M., Schetter,C. and Vollmer,J.C.
  TITLE     Immunostimulatory nucleic acids
  JOURNAL   Patent: WO 0122972-A 777 05-APR-2001;
            UNIVERSITY OF IOWA RESEARCH FOUNDATION (US) ; Coley Pharmaceutical
            GmbH (DE)
FEATURES             Location/Qualifiers
     source          1. .20
                     /organism="synthetic construct"
                     /db_xref="taxon:32630"
BASE COUNT        4 a      6 c      3 g      7 t
ORIGIN

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Qy      1 TCCATAACGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATAACGTTCCTGATGCT 20


RESULT 6
AX105178
LOCUS       AX105178                  20 bp    DNA     linear   PAT 30-APR-2001
DEFINITION  Sequence 77 from Patent WO0122990.
ACCESSION   AX105178
VERSION     AX105178.1  GI:13921328
KEYWORDS    .
SOURCE      synthetic construct.
  ORGANISM  synthetic construct
            artificial sequences.
REFERENCE   1  (bases 1 to 20)
  AUTHORS   Hartmann,G.D., Bratzler,R.L. and Krieg,A.U.
```

```
  TITLE     Methods related to immunostimulatory nucleic acid-induced
            interferon
  JOURNAL   Patent: WO 0122990-A 77 05-APR-2001;
            Coley Pharmaceutical Group, Inc. (US) ; UNIVERSITY OF IOWA RESEARCH
            FOUNDATION (US)
FEATURES             Location/Qualifiers
     source          1. .20
                     /organism="synthetic construct"
                     /db_xref="taxon:32630"
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BASE COUNT        4 a      6 c      3 g      7 t
ORIGIN

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  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATAACGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATAACGTTCCTGATGCT 20


RESULT 7
AX351748
LOCUS       AX351748                 20 bp    DNA     linear   PAT 06-FEB-2002
DEFINITION  Sequence 44 from Patent WO0193902.
ACCESSION   AX351748
VERSION     AX351748.1  GI:18617031
KEYWORDS    .
SOURCE      synthetic construct.
  ORGANISM  synthetic construct
            artificial sequences.
REFERENCE   1
  AUTHORS   Mond,J.J., Flora,M. and Klinman,D.M.
  TITLE     Immunostimulatory rna/dna hybrid molecules
  JOURNAL   Patent: WO 0193902-A 44 13-DEC-2001;
            Biosynexus Incorporated (US)
FEATURES             Location/Qualifiers
     source          1. .20
                     /organism="synthetic construct"
                     /db_xref="taxon:32630"
                     /note="Synthetic HDR"
BASE COUNT        4 a      6 c      3 g      7 t
ORIGIN

  Query Match             100.0%;  Score 20;  DB 6;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 2;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATAACGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATAACGTTCCTGATGCT 20


RESULT 8
AX351814
LOCUS       AX351814                 20 bp    DNA     linear   PAT 06-FEB-2002
DEFINITION  Sequence 110 from Patent WO0193902.
ACCESSION   AX351814
VERSION     AX351814.1  GI:18617097
KEYWORDS    .
SOURCE      synthetic construct.
  ORGANISM  synthetic construct
            artificial sequences.
REFERENCE   1
  AUTHORS   Mond,J.J., Flora,M. and Klinman,D.M.
  TITLE     Immunostimulatory rna/dna hybrid molecules
  JOURNAL   Patent: WO 0193902-A 110 13-DEC-2001;
            Biosynexus Incorporated (US)
FEATURES             Location/Qualifiers
     source          1. .20
                     /organism="synthetic construct"
                     /db_xref="taxon:32630"
                     /note="Synthetic HDR"
BASE COUNT        4 a      6 c      3 g      7 t
ORIGIN

  Query Match             100.0%;  Score 20;  DB 6;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 2;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATAACGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATAACGTTCCTGATGCT 20


RESULT 9
AX351837
LOCUS       AX351837                 20 bp    DNA     linear   PAT 06-FEB-2002
DEFINITION  Sequence 133 from Patent WO0193902.
ACCESSION   AX351837
VERSION     AX351837.1  GI:18617120
KEYWORDS    .
SOURCE      synthetic construct.
  ORGANISM  synthetic construct
            artificial sequences.
REFERENCE   1
  AUTHORS   Mond,J.J., Flora,M. and Klinman,D.M.
  TITLE     Immunostimulatory rna/dna hybrid molecules
  JOURNAL   Patent: WO 0193902-A 133 13-DEC-2001;
            Biosynexus Incorporated (US)
FEATURES             Location/Qualifiers
     source          1. .20
                     /organism="synthetic construct"
                     /db_xref="taxon:32630"
                     /note="Synthetic HDR"
BASE COUNT        4 a      6 c      3 g      7 t
ORIGIN

  Query Match             100.0%;  Score 20;  DB 6;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 2;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATAACGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATAACGTTCCTGATGCT 20


RESULT 10
AX351865
LOCUS       AX351865                 20 bp    DNA     linear   PAT 06-FEB-2002
DEFINITION  Sequence 161 from Patent WO0193902.
ACCESSION   AX351865
VERSION     AX351865.1  GI:18617148
KEYWORDS    .
SOURCE      synthetic construct.
  ORGANISM  synthetic construct
            artificial sequences.
REFERENCE   1
  AUTHORS   Mond,J.J., Flora,M. and Klinman,D.M.
  TITLE     Immunostimulatory rna/dna hybrid molecules
  JOURNAL   Patent: WO 0193902-A 161 13-DEC-2001;
            Biosynexus Incorporated (US)
FEATURES             Location/Qualifiers
     source          1. .20
                     /organism="synthetic construct"
                     /db_xref="taxon:32630"
                     /note="Synthetic HDR"
BASE COUNT        4 a      6 c      3 g      7 t
ORIGIN

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  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATAACGTTCCTGATGCT 20
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          ||||||||||||||||||||
Db      1 TCCATAACGTTCCTGATGCT 20


RESULT 11
AX351886
LOCUS       AX351886                  20 bp    DNA     linear   PAT 06-FEB-2002
DEFINITION  Sequence 182 from Patent WO0193902.
ACCESSION   AX351886
VERSION     AX351886.1  GI:18617169
KEYWORDS    .
SOURCE      synthetic construct.
  ORGANISM  synthetic construct
            artificial sequences.
REFERENCE   1
  AUTHORS   Mond,J.J., Flora,M. and Klinman,D.M.
  TITLE     Immunostimulatory rna/dna hybrid molecules
  JOURNAL   Patent: WO 0193902-A 182 13-DEC-2001;
            Biosynexus Incorporated (US)
FEATURES             Location/Qualifiers
     source          1. .20
                     /organism="synthetic construct"
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                     /note="Synthetic HDR"
BASE COUNT        4 a      6 c      3 g      7 t
ORIGIN

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  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATAACGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATAACGTTCCTGATGCT 20


RESULT 12
AX351911
LOCUS       AX351911                  20 bp    DNA     linear   PAT 06-FEB-2002
DEFINITION  Sequence 207 from Patent WO0193902.
ACCESSION   AX351911
VERSION     AX351911.1  GI:18617194
KEYWORDS    .
SOURCE      synthetic construct.
  ORGANISM  synthetic construct
            artificial sequences.
REFERENCE   1
  AUTHORS   Mond,J.J., Flora,M. and Klinman,D.M.
  TITLE     Immunostimulatory rna/dna hybrid molecules
  JOURNAL   Patent: WO 0193902-A 207 13-DEC-2001;
            Biosynexus Incorporated (US)
FEATURES             Location/Qualifiers
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                     /organism="synthetic construct"
                     /db_xref="taxon:32630"
                     /note="Synthetic HDR"
BASE COUNT        4 a      6 c      3 g      7 t
ORIGIN

  Query Match             100.0%;  Score 20;  DB 6;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 2;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATAACGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATAACGTTCCTGATGCT 20


RESULT 13
AX355517
LOCUS       AX355517                  20 bp    DNA     linear   PAT 06-FEB-2002
DEFINITION  Sequence 545 from Patent WO0197843.
ACCESSION   AX355517
VERSION     AX355517.1  GI:18620185
KEYWORDS    .
SOURCE      synthetic construct.
  ORGANISM  synthetic construct
            artificial sequences.
REFERENCE   1
  AUTHORS   Weiner,G. and Hartmann,G.
  TITLE     Methods for enhancing antibody-induced cell lysis and treating
            cancer
  JOURNAL   Patent: WO 0197843-A 545 27-DEC-2001;
            UNIVERSITY OF IOWA RESEARCH FOUNDATION (US)
FEATURES             Location/Qualifiers
     source          1. .20
                     /organism="synthetic construct"
                     /db_xref="taxon:32630"
                     /note="Synthetic oligonucleotide-phosphodiester backbone"
BASE COUNT        4 a      6 c      3 g      7 t
ORIGIN

  Query Match             100.0%;  Score 20;  DB 6;  Length 20;
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  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATAACGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATAACGTTCCTGATGCT 20


RESULT 14
AX455600
LOCUS       AX455600                  20 bp    DNA     linear   PAT 06-JUL-2002
DEFINITION  Sequence 77 from Patent WO0222809.
ACCESSION   AX455600
VERSION     AX455600.1  GI:21714668
KEYWORDS    .
SOURCE      synthetic construct.
  ORGANISM  synthetic construct
            artificial sequences.
REFERENCE   1
  AUTHORS   Bauer,S., Lipford,G. and Wagner,H.
  TITLE     Process for high throughput screening of cpg-based
            immuno-agonist/antagonist
  JOURNAL   Patent: WO 0222809-A 77 21-MAR-2002;
            Coley Pharmaceutical GmbH (DE)
FEATURES             Location/Qualifiers
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                     /db_xref="taxon:32630"
                     /note="Synthetic oligonucleotide"
BASE COUNT        4 a      6 c      3 g      7 t
ORIGIN

  Query Match             100.0%;  Score 20;  DB 6;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 2;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATAACGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATAACGTTCCTGATGCT 20


RESULT 15
AX465343
LOCUS       AX465343                  20 bp    DNA     linear   PAT 16-JUL-2002
DEFINITION  Sequence 11 from Patent WO0211761.
ACCESSION   AX465343
VERSION     AX465343.1  GI:21899706
KEYWORDS    .
SOURCE      synthetic construct.
  ORGANISM  synthetic construct
            artificial sequences.
REFERENCE   1
  AUTHORS   Mond,J.J., Prince,G. and Klinman,D.M.
```

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  TITLE     Vaccine against RSV
  JOURNAL   Patent: WO 0211761-A 11 14-FEB-2002;
            HENRY M. JACKSON FOUNDATION FOR THE ADVANCEMENT OF MILITARY
            MEDICINE (US)
FEATURES             Location/Qualifiers
     source          1. .20
                     /organism="synthetic construct"
                     /db_xref="taxon:32630"
                     /note="Synthetic oligonucleotide"
BASE COUNT        4 a      6 c      3 g      7 t
ORIGIN

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  Best Local Similarity   100.0%;  Pred. No. 2;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       1 TCCATAACGTTCCTGATGCT 20
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Db       1 TCCATAACGTTCCTGATGCT 20


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SUMMARIES

| Result No. | Score | % Query Match | Length | DB | ID | Description |
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| 1 | 20 | 100.0 | 20 | 19 | AAV27709 | Immunostimulatory |
| 2 | 20 | 100.0 | 20 | 19 | AAV27670 | Immunostimulatory |
| 3 | 20 | 100.0 | 20 | 19 | AAV27652 | Immunostimulatory |
| 4 | 20 | 100.0 | 20 | 19 | AAV27642 | Immunostimulatory |
| 5 | 20 | 100.0 | 20 | 20 | AAZ41895 | IL-12 secretion in |
| 6 | 20 | 100.0 | 20 | 20 | AAV80113 | Oligo used in expe |
| 7 | 20 | 100.0 | 20 | 21 | AAZ60967 | Nucleotide sequenc |
| 8 | 20 | 100.0 | 20 | 21 | AAZ47635 | Parasitic infectio |
| 9 | 20 | 100.0 | 20 | 21 | AAZ47842 | Immunostimulatory |
| 10 | 20 | 100.0 | 20 | 21 | AAZ47971 | Immune remodeling |
| 11 | 20 | 100.0 | 20 | 22 | AAH50573 | Mouse IL-6 and B c |
| 12 | 20 | 100.0 | 20 | 22 | AAF98799 | CpG immunostimulat |
| 13 | 20 | 100.0 | 20 | 22 | AAF99577 | Immunostimulatory |
| 14 | 20 | 100.0 | 20 | 22 | AAH19253 | Phosphodiester CpG |
| 15 | 20 | 100.0 | 20 | 22 | AAH19295 | CpG Oligonucleotid |
| 16 | 20 | 100.0 | 20 | 24 | AAL39202 | Murine Toll-like r |
| 17 | 20 | 100.0 | 20 | 24 | ABK46421 | Immunostimulatory |
| 18 | 20 | 100.0 | 20 | 24 | ABL35136 | Immunostimulatory |
| 19 | 20 | 100.0 | 20 | 24 | ABL35200 | Immunostimulatory |
| 20 | 20 | 100.0 | 20 | 24 | ABL35221 | Immunostimulatory |
| 21 | 20 | 100.0 | 20 | 24 | ABL35247 | Immunostimulatory |
| 22 | 20 | 100.0 | 20 | 24 | ABL35266 | Immunostimulatory |
| 23 | 20 | 100.0 | 20 | 24 | ABL35289 | Immunostimulatory |
| 24 | 20 | 100.0 | 20 | 24 | ABL39123 | Immunostimulatory |
| 25 | 20 | 100.0 | 24 | 24 | ABL35310 | Immunostimulatory |
| 26 | 20 | 100.0 | 26 | 24 | ABL35143 | Immunostimulatory |
| 27 | 20 | 100.0 | 28 | 24 | ABL35331 | Immunostimulatory |
| 28 | 19 | 95.0 | 20 | 21 | AAZ55883 | Immunomodulatory o |
| 29 | 18.4 | 92.0 | 20 | 18 | AAT88792 | Synthetic phosphor |
| 30 | 18.4 | 92.0 | 20 | 19 | AAV45995 | Immune adjuvant Cp |
| 31 | 18.4 | 92.0 | 20 | 19 | AAV45996 | Immune adjuvant Cp |
| 32 | 18.4 | 92.0 | 20 | 19 | AAV27708 | Immunostimulatory |
| 33 | 18.4 | 92.0 | 20 | 19 | AAV27700 | Immunostimulatory |
| 34 | 18.4 | 92.0 | 20 | 19 | AAV27646 | Immunostimulatory |
| 35 | 18.4 | 92.0 | 20 | 19 | AAV27651 | Immunostimulatory |
| 36 | 18.4 | 92.0 | 20 | 20 | AAZ41879 | IL-12 secretion in |
| 37 | 18.4 | 92.0 | 20 | 20 | AAZ28190 | Chlamydia trachoma |
| 38 | 18.4 | 92.0 | 20 | 20 | AAV72500 | CpG motif containi |
| 39 | 18.4 | 92.0 | 20 | 20 | AAV80114 | Oligo used in expe |
| 40 | 18.4 | 92.0 | 20 | 21 | AAC60281 | Immunostimulatory |
| 41 | 18.4 | 92.0 | 20 | 21 | AAA71935 | Murine Th1 cells i |
| 42 | 18.4 | 92.0 | 20 | 21 | AAA90453 | CpG adjuvant oligo |
| 43 | 18.4 | 92.0 | 20 | 21 | AAA48598 | Immunostimulatory |
| 44 | 18.4 | 92.0 | 20 | 21 | AAZ99648 | Nucleotide sequenc |
| 45 | 18.4 | 92.0 | 20 | 21 | AAZ99173 | Inflammatory cardi |

ALIGNMENTS

RESULT 1
AAV27709
ID AAV27709 standard; DNA; 20 BP.
XX
AC AAV27709;
XX
DT 01-OCT-1998 (first entry)
XX
DE Immunostimulatory oligodeoxyribonucleotide of the invention.
XX
KW Immunostimulatory; oligodeoxyribonucleotide; ODN;
KW unmethylated CpG dinucleotide; activate; lymphocyte; immune response;
KW Th2; Th1; cytokine; treatment; prevention; asthma; autoimmune disease;
KW desensitisation therapy; artificial adjuvant; antibody generation; ss.
XX
OS Synthetic.
XX
PN WO9818810-A1.
XX
PD 07-MAY-1998.
XX
PF 30-OCT-1997; 97WO-US19791.
XX
PR 30-OCT-1996; 96US-0738652.
XX
PA (IOWA ) UNIV IOWA RES FOUND.
XX
PI Kline JN, Krieg AM;
XX
DR WPI; 1998-272127/24.
XX
PT New immunostimulatory nucleic acid molecules - which contain at

PT least one unmethylated CpG dinucleotide, used for treating e.g.
PT tumours, infections or autoimmune disease
XX
PS Disclosure; Page 28; 109pp; English.
XX
CC AAV27641-751 represent immunostimulatory oligodeoxyribonucleotides
CC (ODNs) of the invention. The ODNs contain at least one unmethylated CpG
CC dinucleotide, and have the formula:
CC 5' N1X1CGX2N2 3', where at least one nucleotide separates consecutive
CC CpGs, X1 is adenine, guanine, or thymine, X2 is cytosine or thymine, N
CC is any nucleotide and N1+N2 is 0-26 bases with the provision that N1 and
CC N2 does not contain a CCGG tetramer or more than one CCG or CGG trimer
CC OR 5' NX1X2CGX3X4N 3', where at least one nucleotide separates
CC consecutive CpGs, X1 and X2 are selected from GpT, GpG, GpA, ApT and ApA,
CC X3and X4 are selected from TpT or CpT, N is any nucleotide and N1+N2 is
CC 0-26 bases with the provision that N1 and N2 does not contain a CCGG
CC tetramer or more than one CCG or CGG trimer.
CC The ODNs activate lymphocytes in a subject and redirect a subject's
CC immune response from a Th2 to a Th1 (e.g. by inducing monocytic cells
CC and other cells to produce Th1 cytokines, including IL-12, IFN-gamma and
CC GM-CSF). The ODNs can be used to treat or prevent an asthmatic disorder,
CC autoimmune diseases, in desensitisation therapy, as an artificial
CC adjuvant during antibody generation in a mammal such as a mouse or a
CC human.
XX
SQ Sequence 20 BP; 4 A; 6 C; 3 G; 7 T; 0 other;

Query Match 100.0%; Score 20; DB 19; Length 20;
Best Local Similarity 100.0%; Pred. No. 0.83;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 TCCATAACGTTCCTGATGCT 20
||||||||||||||||||||
Db 1 TCCATAACGTTCCTGATGCT 20

RESULT 2
AAV27670
ID AAV27670 standard; DNA; 20 BP.
XX
AC AAV27670;
XX
DT 01-OCT-1998 (first entry)
XX
DE Immunostimulatory phosphodiester CpG oligodeoxyribonucleotide.
XX
KW Immunostimulatory; oligodeoxyribonucleotide; ODN;
KW unmethylated CpG dinucleotide; activate; lymphocyte; immune response;
KW Th2; Th1; cytokine; treatment; prevention; asthma; autoimmune disease;
KW desensitisation therapy; artificial adjuvant; antibody generation; ss.
XX
OS Synthetic.
XX
PN WO9818810-A1.
XX
PD 07-MAY-1998.
XX
PF 30-OCT-1997; 97WO-US19791.
XX
PR 30-OCT-1996; 96US-0738652.
XX
PA (IOWA ) UNIV IOWA RES FOUND.
XX
PI Kline JN, Krieg AM;
XX
DR WPI; 1998-272127/24.
XX
PT New immunostimulatory nucleic acid molecules - which contain at
PT least one unmethylated CpG dinucleotide, used for treating e.g.
PT tumours, infections or autoimmune disease
XX
PS Disclosure; Page 11; 109pp; English.
XX
CC AAV27641-751 represent immunostimulatory oligodeoxyribonucleotides
CC (ODNs) of the invention. The ODNs contain at least one unmethylated CpG
CC dinucleotide, and have the formula:
CC 5' N1X1CGX2N2 3', where at least one nucleotide separates consecutive
CC CpGs, X1 is adenine, guanine, or thymine, X2 is cytosine or thymine, N
CC is any nucleotide and N1+N2 is 0-26 bases with the provision that N1 and
CC N2 does not contain a CCGG tetramer or more than one CCG or CGG trimer
CC OR 5' NX1X2CGX3X4N 3', where at least one nucleotide separates
CC consecutive CpGs, X1 and X2 are selected from GpT, GpG, GpA, ApT and ApA,
CC X3and X4 are selected from TpT or CpT, N is any nucleotide and N1+N2 is
CC 0-26 bases with the provision that N1 and N2 does not contain a CCGG
CC tetramer or more than one CCG or CGG trimer.
CC The ODNs activate lymphocytes in a subject and redirect a subject's
CC immune response from a Th2 to a Th1 (e.g. by inducing monocytic cells
CC and other cells to produce Th1 cytokines, including IL-12, IFN-gamma and
CC GM-CSF). The ODNs can be used to treat or prevent an asthmatic disorder,
CC autoimmune diseases, in desensitisation therapy, as an artificial
CC adjuvant during antibody generation in a mammal such as a mouse or a
CC human.
XX
SQ Sequence 20 BP; 4 A; 6 C; 3 G; 7 T; 0 other;

Query Match 100.0%; Score 20; DB 19; Length 20;
Best Local Similarity 100.0%; Pred. No. 0.83;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 TCCATAACGTTCCTGATGCT 20
||||||||||||||||||||
Db 1 TCCATAACGTTCCTGATGCT 20

RESULT 3
AAV27652
ID AAV27652 standard; DNA; 20 BP.
XX
AC AAV27652;
XX
DT 01-OCT-1998 (first entry)
XX
DE Immunostimulatory oligodeoxyribonucleotide of the invention.
XX
KW Immunostimulatory; oligodeoxyribonucleotide; ODN;
KW unmethylated CpG dinucleotide; activate; lymphocyte; immune response;
KW Th2; Th1; cytokine; treatment; prevention; asthma; autoimmune disease;
KW desensitisation therapy; artificial adjuvant; antibody generation; ss.
XX
OS Synthetic.
XX
PN WO9818810-A1.
XX
PD 07-MAY-1998.
XX
PF 30-OCT-1997; 97WO-US19791.
XX
PR 30-OCT-1996; 96US-0738652.
XX
PA (IOWA ) UNIV IOWA RES FOUND.
XX
PI Kline JN, Krieg AM;
XX
DR WPI; 1998-272127/24.
XX
PT New immunostimulatory nucleic acid molecules - which contain at
PT least one unmethylated CpG dinucleotide, used for treating e.g.
PT tumours, infections or autoimmune disease
XX
PS Claim 26; Page 83; 109pp; English.
XX
CC AAV27641-751 represent immunostimulatory oligodeoxyribonucleotides
CC (ODNs) of the invention. The ODNs contain at least one unmethylated CpG
CC dinucleotide, and have the formula:
CC 5' N1X1CGX2N2 3', where at least one nucleotide separates consecutive
CC CpGs, X1 is adenine, guanine, or thymine, X2 is cytosine or thymine, N

CC is any nucleotide and N1+N2 is 0-26 bases with the provision that N1 and
CC N2 does not contain a CCGG tetramer or more than one CCG or CGG trimer
CC OR 5' NX1X2CGX3X4N 3', where at least one nucleotide separates
CC consecutive CpGs, X1 and X2 are selected from GpT, GpG, GpA, ApT and ApA,
CC X3and X4 are selected from TpT or CpT, N is any nucleotide and N1+N2 is
CC 0-26 bases with the provision that N1 and N2 does not contain a CCGG
CC tetramer or more than one CCG or CGG trimer.
CC The ODNs activate lymphocytes in a subject and redirect a subject's
CC immune response from a Th2 to a Th1 (e.g. by inducing monocytic cells
CC and other cells to produce Th1 cytokines, including IL-12, IFN-gamma and
CC GM-CSF). The ODNs can be used to treat or prevent an asthmatic disorder,
CC autoimmune diseases, in desensitisation therapy, as an artificial
CC adjuvant during antibody generation in a mammal such as a mouse or a
CC human.
XX
SQ Sequence 20 BP; 4 A; 6 C; 3 G; 7 T; 0 other;

Query Match 100.0%; Score 20; DB 19; Length 20;
Best Local Similarity 100.0%; Pred. No. 0.83;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 TCCATAACGTTCCTGATGCT 20
||||||||||||||||||||
Db 1 TCCATAACGTTCCTGATGCT 20

RESULT 4
AAV27642
ID AAV27642 standard; DNA; 20 BP.
XX
AC AAV27642;
XX
DT 01-OCT-1998 (first entry)
XX
DE Immunostimulatory oligodeoxyribonucleotide of the invention.
XX
KW Immunostimulatory; oligodeoxyribonucleotide; ODN;
KW unmethylated CpG dinucleotide; activate; lymphocyte; immune response;
KW Th2; Th1; cytokine; treatment; prevention; asthma; autoimmune disease;
KW desensitisation therapy; artificial adjuvant; antibody generation; ss.
XX
OS Synthetic.
XX
PN WO9818810-A1.
XX
PD 07-MAY-1998.
XX
PF 30-OCT-1997; 97WO-US19791.
XX
PR 30-OCT-1996; 96US-0738652.
XX
PA (IOWA ) UNIV IOWA RES FOUND.
XX
PI Kline JN, Krieg AM;
XX
DR WPI; 1998-272127/24.
XX
PT New immunostimulatory nucleic acid molecules - which contain at
PT least one unmethylated CpG dinucleotide, used for treating e.g.
PT tumours, infections or autoimmune disease
XX
PS Claim 23; Page 82; 109pp; English.
XX
CC AAV27641-751 represent immunostimulatory oligodeoxyribonucleotides
CC (ODNs) of the invention. The ODNs contain at least one unmethylated CpG
CC dinucleotide, and have the formula:
CC 5' N1X1CGX2N2 3', where at least one nucleotide separates consecutive
CC CpGs, X1 is adenine, guanine, or thymine, X2 is cytosine or thymine, N
CC is any nucleotide and N1+N2 is 0-26 bases with the provision that N1 and
CC N2 does not contain a CCGG tetramer or more than one CCG or CGG trimer
CC OR 5' NX1X2CGX3X4N 3', where at least one nucleotide separates
CC consecutive CpGs, X1 and X2 are selected from GpT, GpG, GpA, ApT and ApA,
CC X3and X4 are selected from TpT or CpT, N is any nucleotide and N1+N2 is
CC 0-26 bases with the provision that N1 and N2 does not contain a CCGG
CC tetramer or more than one CCG or CGG trimer.
CC The ODNs activate lymphocytes in a subject and redirect a subject's
CC immune response from a Th2 to a Th1 (e.g. by inducing monocytic cells
CC and other cells to produce Th1 cytokines, including IL-12, IFN-gamma and
CC GM-CSF). The ODNs can be used to treat or prevent an asthmatic disorder,
CC autoimmune diseases, in desensitisation therapy, as an artificial
CC adjuvant during antibody generation in a mammal such as a mouse or a
CC human.
XX
SQ Sequence 20 BP; 4 A; 6 C; 3 G; 7 T; 0 other;

Query Match 100.0%; Score 20; DB 19; Length 20;
Best Local Similarity 100.0%; Pred. No. 0.83;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 TCCATAACGTTCCTGATGCT 20
||||||||||||||||||||
Db 1 TCCATAACGTTCCTGATGCT 20

RESULT 5
AAZ41895
ID AAZ41895 standard; DNA; 20 BP.
XX
AC AAZ41895;
XX
DT 24-JAN-2000 (first entry)
XX
DE IL-12 secretion inducing CpG oligonucleotide 40.
XX
KW CpG oligonucleotide; phosphorothioate; interleukin-12; IL-12; secretion;
KW human PBMC; immune response; cancer; HIV; bacterial disease; asthma;
KW neoplastic disorder; jaagsiekte; B cell; NK cell; ss; cytokine;
KW antigen presenting cell; infection; allergic disease.
XX
OS Synthetic.
XX
PN WO9951259-A2.
XX
PD 14-OCT-1999.
XX
PF 02-APR-1999; 99WO-US07335.
XX
PR 03-APR-1998; 98US-0080729.
XX
PA (IOWA ) UNIV IOWA RES FOUND.
XX
PI Krieg AM, Weiner G;
XX
DR WPI; 1999-620169/53.
XX
PT Novel synergistic combinations of immunostimulatory oligonucleotides
PT and immunopotentiating cytokines are useful for stimulating the immune
PT system -
XX
PS Example 8; Page 77; 91pp; English.
XX
CC Sequences AAZ41856-Z41949 are phosphorothioate CpG oligonucleotides
CC which are used in the invention to induce interleukin-12 (IL-12)
CC secretion from human PBMC. The invention comprises stimulating an immune
CC response in a subject comprising administering to a subject exposed to an
CC antigen, an immunopotentiating cytokine and an immunostimulatory CpG
CC oligonucleotide to induce a synergistic antigen specific immune
CC response. The methods are useful for treating cancer by stimulating an
CC antigen specific immune response against a cancer antigen. The methods
CC can also be used to treat neoplastic disorders in humans, including but
CC not limited to: sarcoma, carcinoma, fibroma, Lymphoma, melanoma,
CC neuroblastoma, retinoblastoma, and glioma. The methods are also useful
CC for treating infectious diseases, e.g. viral diseases such as HIV,
CC bacterial diseases, and fungal diseases. The methods may also be used to
CC treat allergic diseases, e.g. asthma. The methods and compositions may
CC also be applied to treat cancer and tumours in non human subjects,

CC e.g. cats and dogs. Neoplasias affecting agricultural livestock may also
CC be treated and include leukaemia, haemangiopericytoma and bovine ocular
CC neoplasia. Chronic, infectious, contagious diseases of sheep and goats
CC caused by the bacterium Corynebacterium pseudotuberculosis, and
CC contagious lung tumour of sheep caused by jaagsiekte may also be
CC treated. CpG oligonucleotides can be useful in activating B cells, NK
CC cells, and antigen presenting cells, such as monocytes and macrophages.
CC CpG oligonucleotides enhance antibody dependent cellular cytotoxicity and
CC can be used as an adjuvant in conjunction with tumour antigens to
CC protect against a tumour challenge.
XX
SQ Sequence 20 BP; 4 A; 6 C; 3 G; 7 T; 0 other;

Query Match 100.0%; Score 20; DB 20; Length 20;
Best Local Similarity 100.0%; Pred. No. 0.83;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 TCCATAACGTTCCTGATGCT 20
||||||||||||||||||||
Db 1 TCCATAACGTTCCTGATGCT 20

RESULT 6
AAV80113
ID AAV80113 standard; DNA; 20 BP.
XX
AC AAV80113;
XX
DT 12-MAR-1999 (first entry)
XX
DE Oligo used in experiments for stimulation of cytokine production.
XX
KW Immunomodulatory; immunostimulatory; octanucleotide; immune regulation;
KW ISS: cancer; allergy; asthma; hepatitis B infection; papillomavirus;
KW human immunodeficiency virus; influenza; herpes; M. tuberculosis; ss;
KW B. pertussis; malaria; plasmodia; Leishmania; Trypanosoma; Schistosoma.
XX
OS Synthetic.
XX
FH Key Location/Qualifiers
FT modified_base 8
FT /*tag= a
FT /note= "5-bromocytosine"
XX
PN WO9855495-A2.
XX
PD 10-DEC-1998.
XX
PF 05-JUN-1998; 98WO-US11578.
XX
PR 06-JUN-1997; 97US-0048793.
XX
PA (DYNA-) DYNAVAX TECHNOLOGIES CORP.
XX
PI Dina D, Roman M, Schwartz D;
XX
DR WPI; 1999-059898/05.
XX
PT Immunostimulatory oligonucleotides regulate the immune system - and
PT contain an immune-stimulating octanucleotide sequence; for treating
PT cancer, allergic and infectious diseases
XX
PS Example 2; Page 30; 63pp; English.
XX
CC The invention relates to immunomodulatory oligonucleotides that comprise
CC at least 1 immunostimulatory octanucleotide sequence (ISS) where the ISS
CC sequences are selected from the group consisting of AACGTTCC, AACGTTCG,
CC GACGTTCC, and GACGTTCG. The immunomodulatory sequences are used to treat
CC patients needing immune regulation, such as those suffering from cancer,
CC an allergic disease and asthma. They are also used to prevent infectious
CC diseases such as influenza, herpes, hepatitis B, human immunodeficiency
CC and papillomavirus, Hemophilus influenza, Mycobacterium tuberculosis and
CC Bordetella pertussis, malarial plasmodia, Leishmania, Trypanosoma and
CC Schistosoma. The immunomodulatory sequences are used to screen for human
CC immunostimulatory activity by incubating macrophage cells and the
CC oligonucleotide; and determining the relative amount of Th1-biased
CC cytokines in the supernatant. Sequences AAV80104 to AAV80116 represent
CC oligonucleotides that were tested for immunostimulatory activity. These
CC were used in experiments for the stimulation of cytokine production and
CC were found to lack immunostimulatory activity. The invention provides
CC specific claimed examples (AAV80096-103) of immunomodulatory sequences.
XX
SQ Sequence 20 BP; 4 A; 6 C; 3 G; 7 T; 0 other;

Query Match 100.0%; Score 20; DB 20; Length 20;
Best Local Similarity 100.0%; Pred. No. 0.83;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 TCCATAACGTTCCTGATGCT 20
||||||||||||||||||||
Db 1 TCCATAACGTTCCTGATGCT 20

RESULT 7
AAZ60967
ID AAZ60967 standard; DNA; 20 BP.
XX
AC AAZ60967;
XX
DT 30-MAY-2000 (first entry)
XX
DE Nucleotide sequence of an immunostimulatory CpG oligonucleotide.
XX
KW Immunostimulatory; stereoisomer; CpG oligonucleotide; Th2; Th1; asthma;
KW allergic reaction; allergen; cancer antigen; cancer; immunoinhibitory;
KW inflammatory disease; inflammatory bowel disease; autoimmune disease;
KW gingivitis; psoriasis; sepsis; ss.
XX
OS Synthetic.
XX
PN WO200006588-A1.
XX
PD 10-FEB-2000.
XX
PF 27-JUL-1999; 99WO-US17100.
XX
PR 27-JUL-1998; 98US-0094370.
XX
PA (IOWA ) UNIV IOWA RES FOUND.
PA (CPGI-) CPG IMMUNOPHARMACEUTICALS INC.
XX
PI Krieg AM;
XX
DR WPI; 2000-195254/17.
XX
PT Immunostimulatory and immunoinhibitory stereoisomers of CpG
PT oligonucleotides useful for immunotherapy of cancer -
XX
PS Disclosure; Page 11; 88pp; English.
XX
CC AAZ60933-Z61015 represent immunostimulatory stereoisomers of CpG
CC oligonucleotides. The sequences are derived from generic nucleic
CC acid sequence, from which immunoinhibitory sequences may also be
CC derived. The immunostimulatory nucleic acids can be co-administered
CC with an antigen to induce an antigen-specific immune response. The
CC immunostimulatory nucleic acids can also be used in methods for
CC redirecting a subject's immune response from a Th2 to a Th1, for
CC treating asthma, for desensitising a subject against the occurrence
CC of an allergic reaction in response to contact with an allergen, for
CC activating an immune cell, especially a lymphocyte or a dendritic cell
CC expressing a cancer antigen or for treating cancer. The immunoinhibitory
CC nucleic acid can be used to prevent an immune response, especially where
CC the immune response in the subject is excessive due to having received
CC an immune stimulating compound. The immunoinhibitory nucleic acid can
CC be used to treat a subject having or at risk of an inflammatory disease,
CC especially inflammatory bowel disease, autoimmune disease, gingivitis,

CC psoriasis and sepsis.
XX
SQ Sequence 20 BP; 4 A; 6 C; 3 G; 7 T; 0 other;

Query Match 100.0%; Score 20; DB 21; Length 20;
Best Local Similarity 100.0%; Pred. No. 0.83;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 TCCATAACGTTCCTGATGCT 20
||||||||||||||||||||
Db 1 TCCATAACGTTCCTGATGCT 20

RESULT 8
AAZ47635
ID AAZ47635 standard; DNA; 20 BP.
XX
AC AAZ47635;
XX
DT 01-MAR-2000 (first entry)
XX
DE Parasitic infection preventing exemplary oligonucleotide SEQ ID NO:41.
XX
KW Immune system; immunostimulatory; parasitic infection; parasite;
KW CpG oligonucleotide; antigen presenting cell; natural killer cell;
KW granulocyte; malaria; helminth disease; tick; mite; ss.
XX
OS Synthetic.
XX
PN WO9956755-A1.
XX
PD 11-NOV-1999.
XX
PF 06-MAY-1999; 99WO-US09863.
XX
PR 06-MAY-1998; 98US-0084512.
XX
PA (IOWA ) UNIV IOWA RES FOUND.
PA (OTTA-) OTTAWA CIVIC LOEB RES INST.
PA (USNA ) US SEC OF NAVY.
XX
PI Gramzinski RA, Krieg AM, Davis HL, Hoffman SL;
XX
DR WPI; 2000-062123/05.
XX
PT Treating and preventing parasitic infections using CpG oligonucleotides
XX
PS Disclosure; Page 20; 74pp; English.
XX
CC The present invention describes a method for treating and preventing
CC parasitic infection by administration of unmethylated CpG
CC oligonucleotides. The CpG oligonucleotides are able to stimulate the
CC innate immune system via the activation of immune cells, such as antigen
CC presenting cells, natural killer cells and granulocytes. The CpG
CC oligonucleotides and the method can be used to treat and prevent
CC parasitic diseases, such as malaria, helminth diseases, tick and mites
CC in humans, animals and poultry. The oligonucleotides may be administered
CC in conjunction with parasiticides or other therapeutic compounds after
CC an organism has been diagnosed to be infected with parasites. Diseases
CC which can be treated or prevented include those caused by Plasmodium
CC falciparum, P. ovale, P. malariae, P. vivax, P. knowlesi, Babesia
CC microti, B. divergens, Trypanosoma cruzi, T. gambiense, T. rhodesiense,
CC Schistosoma mansoni, Toxoplasma gondii, Trichinella spiralis, Leishmania
CC major, L. donovani, L. braziliensis, and L. tropica. The parasite is
CC especially capable of causing malaria. The present sequence represents
CC a parasitic infection preventing exemplary oligonucleotide sequence from
CC the present invention.
XX
SQ Sequence 20 BP; 4 A; 6 C; 3 G; 7 T; 0 other;

Query Match 100.0%; Score 20; DB 21; Length 20;
Best Local Similarity 100.0%; Pred. No. 0.83;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 TCCATAACGTTCCTGATGCT 20
||||||||||||||||||||
Db 1 TCCATAACGTTCCTGATGCT 20

RESULT 9
AAZ47842
ID AAZ47842 standard; DNA; 20 BP.
XX
AC AAZ47842;
XX
DT 07-MAR-2000 (first entry)
XX
DE Immunostimulatory oligonucleotide sequence SEQ ID NO:43.
XX
KW Mucosal immunity; immunostimulatory; CpG motif; immune response;
KW antigen; allergic reaction; cancer; infectious disease; asthma; eczema;
KW allergic rhinitis; coryza; hay fever; conjunctivitis; bronchial asthma;
KW urticaria; food allergy; atopic condition; mucosal delivery; ss.
XX
OS Synthetic.
XX
PN WO9961056-A2.
XX
PD 02-DEC-1999.
XX
PF 21-MAY-1999; 99WO-US11359.
XX
PR 22-MAY-1998; 98US-0086393.
XX
PA (LOEB-) LOEB HEALTH RES INST AT OTTAWA HOSPITAL.
PA (CPGI-) CPG IMMUNOPHARMACEUTICALS INC.
XX
PI McCluskie MJ, Davis HL;
XX
DR WPI; 2000-062585/05.
XX
PT Use of CpG containing oligonucleotides as adjuvants for inducing an
PT immune response -
XX
PS Disclosure; Page 24; 116pp; English.
XX
CC The present invention describes a method using CpG containing
CC oligonucleotides (ONs) as adjuvants for inducing an immune response.
CC The method for inducing a mucosal immune response (MIR) comprises:
CC (1) administering to a mucosal surface of a subject an ON, having a
CC sequence including at least the formula (I); and (2) exposing the
CC subject to an antigen to induce the MIR, where the antigen is not
CC encoded in a nucleic acid vector: 5'X1X2CGX3X43' (I), where
CC C and G = unmethylated, and X1, X2, X3 and X4 = nucleotides. The method
CC can be used for treating a subject at risk of developing an allergic
CC reaction, cancer or infectious disease. It can be used for treating
CC asthmatic subjects, eczema, allergic rhinitis or coryza, hay fever,
CC conjunctivitis, bronchial asthma, urticaria, food allergies or other
CC atopic conditions. The antigen may be derived from infectious organisms
CC such as infectious bacteria, viruses, parasites or fungi. It can be used
CC in humans or animals, e.g. bovine, equine, feline, swine, aquatic or
CC avian species. The ONs act as potent mucosal adjuvants to induce immune
CC responses at both local and remote sites against an antigen
CC administered to the mucosal tissue. Both systemic and mucosal immunity
CC are induced by mucosal delivery of the ONs. AAZ47808 to AAZ47891
CC represent examples of immunostimulatory oligonucleotides given in the
CC present invention.
XX
SQ Sequence 20 BP; 4 A; 6 C; 3 G; 7 T; 0 other;

Query Match 100.0%; Score 20; DB 21; Length 20;
Best Local Similarity 100.0%; Pred. No. 0.83;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 TCCATAACGTTCCTGATGCT 20
||||||||||||||||||||

```
Db      1 TCCATAACGTTCCTGATGCT 20

RESULT 10
AAZ47971
ID   AAZ47971 standard; DNA; 20 BP.
XX
AC   AAZ47971;
XX
DT   08-MAR-2000  (first entry)
XX
DE   Immune remodeling inducing CpG oligonucleotide SEQ ID NO:49.
XX
KW   Haematopoiesis; regulation; CpG oligonucleotide; phosphorothioate;
KW   immune remodeling; thrombopoiesis; anaemia; immune system; cancer;
KW   immune response; allergic reaction; infectious disease; asthma;
KW   thrombocytopaenia; immunohaemolytic disorder; genetic disorder;
KW   haemoglobinopathy; kidney failure; chronic inflammatory disorder;
KW   rheumatoid arthritis; ss.
XX
OS   Synthetic.
XX
PN   WO9958118-A2.
XX
PD   18-NOV-1999.
XX
PF   14-MAY-1999;   99WO-IB01285.
XX
PR   14-MAY-1998;   98US-0085516.
PR   02-FEB-1999;   99US-0241653.
XX
PA   (CPGI-) CPG IMMUNOPHARMACEUTICALS GMBH.
PA   (CPGI-) CPG IMMUNOPHARMACEUTICALS INC.
XX
PI   Wagner H,  Lipford G;
XX
DR   WPI; 2000-062261/05.
XX
PT   Use of CpG containing oligonucleotides for, e.g. inducing an
PT   antigen-specific immune response  -
XX
PS   Example 1; Page 66; 116pp; English.
XX
CC   The present invention describes a method using CpG containing
CC   oligonucleotides (ONs) for regulating immune system remodeling and for
CC   regulating haematopoiesis. The method for inducing an antigen-specific
CC   immune response comprises: (1) administering an ON having a sequence
CC   including at least the formula (I); and (2) exposing the subject to an
CC   antigen at least 3 days after the ON is administered to the subject to
CC   produce an antigen-specific immune response: 5' X1CGX2 3' (I), where
CC   the ON = includes at least 8 nucleotides; C and G = unmethylated, and
CC   X1 and X2 = nucleotides. The method can be used for inducing an immune
CC   response against an antigen such as cells, cell extracts, proteins,
CC   polysaccharides, polysaccharide conjugates, lipids, glycolipids,
CC   carbohydrate, viral extracts, viruses, bacteria, fungi, parasites and
CC   allergens. It can be used in a subject at risk of developing cancer or
CC   an allergic reaction. It can also be used for treating an infectious
CC   disease, allergic diseases and asthma, as well as thrombocytopaenia
CC   which is drug-induced, due to an autoimmune disorder such as idiopathic
CC   thrombocytopenic purpura, or resulting from accidental or therapeutic
CC   radiation exposure. It can also be used for treating anaemia such as
CC   drug-induced anaemia, immunohaemolytic disorder, genetic disorders such
CC   as haemoglobinopathy and inherited haemolytic anaemia, inadequate
CC   production despite adequate iron stores, chronic disease such as kidney
CC   failure, and chronic inflammatory disorder such as rheumatoid arthritis,
CC   or anaemia resulting from accidental or therapeutic radiation exposure.
CC   AAZ47932 to AAZ48029 represent phosphorothioate CpG oligonucleotides
CC   used in the exemplification of the present invention.
XX
SQ   Sequence 20 BP; 4 A; 6 C; 3 G; 7 T; 0 other;

  Query Match             100.0%;  Score 20;  DB 21;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 0.83;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATAACGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATAACGTTCCTGATGCT 20


RESULT 11
AAH50573
ID   AAH50573 standard; DNA; 20 BP.
XX
AC   AAH50573;
XX
DT   22-AUG-2001  (first entry)
XX
DE   Mouse IL-6 and B cell activation oligonucleotide SEQ ID NO:3.
XX
KW   Immunostimulatory; inducing; natural killer cell; lytic activity;
KW   unmethylated CpG dinucleotide; immune response; B cell proliferation;
KW   Th1; immune activation; interleukin 6; IL-6; interferon gamma;
KW   IFN-gamma; cytokine; ss.
XX
OS   Mus sp.
OS   Synthetic.
XX
PN   US6239116-B1.
XX
PD   29-MAY-2001.
XX
PF   30-OCT-1997;   97US-0960774.
XX
PR   30-OCT-1996;   96US-0738652.
XX
PA   (IOWA ) UNIV IOWA RES FOUND.
PA   (COLE-) COLEY PHARM GROUP INC.
PA   (USSH ) US DEPT HEALTH & HUMAN SERVICES.
XX
PI   Krieg AM,  Kline JN;
XX
DR   WPI; 2001-380456/40.
XX
PT   Methods for inducing Il-6, interferon-gamma or Il-12, or stimulating
PT   natural killer cell lytic activity in a human, comprise administering
PT   to the subject or exposing a natural killer cell to immunostimulatory
PT   nucleic acids  -
XX
PS   Disclosure; Column 19; 74pp; English.
XX
CC   The present invention describes methods for inducing interleukin 6
CC   (IL-6), interferon-gamma (IFN-gamma) or IL-12, or for stimulating
CC   natural killer cell lytic activity. The methods comprise administering
CC   to the subject or exposing a natural killer cell to an immunostimulatory
CC   nucleic acid. Also described are: (1) inducing IL-6 in a subject
CC   comprising administering to the subject to induce IL-6 in the subject
CC   the immunostimulatory nucleic acid; (2) stimulating natural killer cell
CC   lytic activity comprising exposing a natural killer cell to the
CC   immunostimulatory nucleic acid to stimulate natural killer cell lytic
CC   activity; (3) inducing interferon-gamma in a subject to treat an immune
CC   system deficiency comprising administering to the subject to induce
CC   interferon-gamma production, the immunostimulatory nucleic acid; and
CC   (4) inducing IL-12 in a subject comprising administering to the subject
CC   the immunostimulatory nucleic acid. The methods are useful for inducing
CC   IL-6, interferon-gamma or IL-12, or stimulating natural killer cell
CC   lytic activity in a subject, particularly a human. The methods are
CC   particularly useful for modulating an immune response. AAH50571 to
CC   AAH50671 represent oligonucleotide sequences used in the exemplification
CC   of the present invention.
XX
SQ   Sequence 20 BP; 4 A; 6 C; 3 G; 7 T; 0 other;

  Query Match             100.0%;  Score 20;  DB 22;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 0.83;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;
```

```
Qy      1 TCCATAACGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATAACGTTCCTGATGCT 20


RESULT 12
AAF98799
ID   AAF98799 standard; DNA; 20 BP.
XX
AC   AAF98799;
XX
DT   11-JUN-2001  (first entry)
XX
DE   CpG immunostimulatory nucleic acid SEQ ID NO: 77.
XX
KW   Immunostimulatory nucleic acid; ISNA; human; interferon alpha; IFN-alpha;
KW   viral infection; phosphorothioate backbone; palindrome; cancer; ds.
XX
OS   Synthetic.
XX
PN   WO200122990-A2.
XX
PD   05-APR-2001.
XX
PF   27-SEP-2000; 2000WO-US26527.
XX
PR   27-SEP-1999;   99US-0156147.
XX
PA   (COLE-) COLEY PHARM GROUP INC.
PA   (IOWA ) UNIV IOWA RES FOUND.
XX
PI   Hartmann G,  Bratzler RL,  Krieg A;
XX
DR   WPI; 2001-290487/30.
XX
PT   Improving the efficacy of treatments involving the administration of
PT   interferon-alpha by co-administering an isolated immunostimulatory
PT   nucleic acid -
XX
PS   Disclosure; Page 22; 168pp; English.
XX
CC   The present invention describes an improvement to a method requiring the
CC   administration of interferon alpha (IFN-alpha), involving administering
CC   an immunostimulatory nucleic acid (ISNA). The sequences of a number of
CC   such nucleic acids are also provided. These may comprise oligonucleotides
CC   with phosphorothioate backbones, palindromes, or G-rich sequences. The
CC   sequences of the invention are useful in the treatment of proliferative
CC   diseases, such as cancers, and viral infections. The present sequence is
CC   an example of an immunostimulatory oligonucleotide.
XX
SQ   Sequence 20 BP; 4 A; 6 C; 3 G; 7 T; 0 other;

  Query Match             100.0%;  Score 20;  DB 22;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 0.83;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATAACGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATAACGTTCCTGATGCT 20


RESULT 13
AAF99577
ID   AAF99577 standard; DNA; 20 BP.
XX
AC   AAF99577;
XX
DT   12-JUN-2001  (first entry)
XX
DE   Immunostimulatory nucleic acid #693.
XX
KW   Vaccine; cytostatic; virucidal; bactericidal; fungicidal; anti-parasitic;
KW   immunostimulatory; tumour; viral infection; bacterial infection;
KW   fungal infection; parasitic infection; cancer; asthma;
KW   infectious disease; allergy; immune deficiency; phosphorothioate; ss.
XX
OS   Synthetic.
XX
PN   WO200122972-A2.
XX
PD   05-APR-2001.
XX
PF   25-SEP-2000; 2000WO-US26383.
XX
PR   25-SEP-1999;   99US-0156113.
PR   27-SEP-1999;   99US-0156135.
PR   23-AUG-2000; 2000US-0227436.
XX
PA   (IOWA ) UNIV IOWA RES FOUND.
PA   (COLE-) COLEY PHARM GMBH.
XX
PI   Krieg AM,  Schetter C,  Vollmer J;
XX
DR   WPI; 2001-273485/28.
XX
PT   Vaccinating against tumors, infectious diseases, allergies and asthma
PT   using immunostimulatory Py-rich and TG nucleic acids -
XX
PS   Claim 101; Page 53; 338pp; English.
XX
CC   The present invention relates to a method for stimulating an immune
CC   response. The method comprises administering an immunostimulatory nucleic
CC   acid to a non-rodent subject in sufficient quantity to stimulate an
CC   immune response. The present sequence is one such immunostimulatory
CC   nucleic acid. The immunostimulatory nucleic acids can be pyrimidine rich
CC   (py-rich) or thymidine (T) rich. The method is used to vaccinate subjects
CC   against tumour antigens, viral antigens (e.g. herpesviridae, retroviridae
CC   and/or orthomyxoviridae), bacterial antigens (e.g. toxoplasma,
CC   haemophilus, campylobacter, clostridium, Escherichia coli and/or
CC   staphylococcus), fungal antigens and/or parasitic antigens. The method is
CC   also useful for preventing cancer, asthma, infectious disease, allergy or
CC   immune deficiency. The present sequence can also be used to redirect a
CC   Th2 to a Th1 immune response and to activate immune cells.
CC   Note: the present sequence may have a phosphorothioate backbone.
XX
SQ   Sequence 20 BP; 4 A; 6 C; 3 G; 7 T; 0 other;

  Query Match             100.0%;  Score 20;  DB 22;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 0.83;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATAACGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATAACGTTCCTGATGCT 20


RESULT 14
AAH19253
ID   AAH19253 standard; DNA; 20 BP.
XX
AC   AAH19253;
XX
DT   13-JUL-2001  (first entry)
XX
DE   Phosphodiester CpG oligonucleotide #2.
XX
KW   Immunostimulant; antiallergic; cytostatic; antiasthmatic; vaccine;
KW   gene therapy; CpG; immune system deficiency; tumour; cancer; infection;
KW   leukaemia; ss.
XX
OS   Synthetic.
XX
PN   US6207646-B1.
XX
PD   27-MAR-2001.
```

XX
PF 30-OCT-1996; 96US-0738652.
XX
PR 07-FEB-1995; 95US-0386063.
PR 15-JUL-1994; 94US-0276358.
XX
PA (IOWA ) UNIV IOWA RES FOUND.
PA (COLE-) COLEY PHARM GROUP INC.
PA (USSH ) US DEPT HEALTH & HUMAN SERVICES.
XX
PI Krieg AM, Kline J, Klinman D, Steinberg AD;
XX
DR WPI; 2001-280761/29.
XX
PT Compositions comprising immunostimulatory molecules which comprise
PT unmethylated CpG dinucleotides useful for ameliorating immune system
PT deficiency, treating leukemia and desensitizing subject against
PT allergic response -
XX
PS Disclosure; Column 7; 55pp; English.
XX
CC The present invention relates to a composition comprising an isolated
CC immunostimulatory nucleic acid which comprises unmethylated
CC cytosine-guanine (CpG) dinucleotides and an antigen in a carrier. The
CC present sequence is an oligonucleotide, which was used in the present
CC invention. The immunostimulatory nucleic acids are useful for
CC ameliorating an immune system deficiency (the presence of tumour, cancer
CC or infectious agent) in a subject. The immunostimulatory nucleic acids
CC are also useful for desensitising a subject against the occurrence of an
CC allergic reaction in response to contact with a particular allergen.
CC The immunostimulatory nucleic acids are also useful for vaccination and
CC for treating leukaemia in a subject on administration prior to or in
CC conjunction with a chemotherapy, so that the subject's leukaemia cells
CC are more sensitive to chemotherapy. The compositions are useful for
CC inducing an antigen specific immune response in the subject. The
CC compositions can be also used to treat or prevent the symptoms of asthma.
XX
SQ Sequence 20 BP; 4 A; 6 C; 3 G; 7 T; 0 other;

Query Match 100.0%; Score 20; DB 22; Length 20;
Best Local Similarity 100.0%; Pred. No. 0.83;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 TCCATAACGTTCCTGATGCT 20
||||||||||||||||||||
Db 1 TCCATAACGTTCCTGATGCT 20

RESULT 15
AAH19295
ID AAH19295 standard; DNA; 20 BP.
XX
AC AAH19295;
XX
DT 13-JUL-2001 (first entry)
XX
DE CpG Oligonucleotide 1639.
XX
KW Immunostimulant; antiallergic; cytostatic; antiasthmatic; vaccine;
KW gene therapy; CpG; immune system deficiency; tumour; cancer; infection;
KW leukaemia; ss.
XX
OS Synthetic.
XX
PN US6207646-B1.
XX
PD 27-MAR-2001.
XX
PF 30-OCT-1996; 96US-0738652.
XX
PR 07-FEB-1995; 95US-0386063.
PR 15-JUL-1994; 94US-0276358.
XX
PA (IOWA ) UNIV IOWA RES FOUND.
PA (COLE-) COLEY PHARM GROUP INC.
PA (USSH ) US DEPT HEALTH & HUMAN SERVICES.
XX
PI Krieg AM, Kline J, Klinman D, Steinberg AD;
XX
DR WPI; 2001-280761/29.
XX
PT Compositions comprising immunostimulatory molecules which comprise
PT unmethylated CpG dinucleotides useful for ameliorating immune system
PT deficiency, treating leukemia and desensitizing subject against
PT allergic response -
XX
PS Disclosure; Columns 17-18; 55pp; English.
XX
CC The present invention relates to a composition comprising an isolated
CC immunostimulatory nucleic acid which comprises unmethylated
CC cytosine-guanine (CpG) dinucleotides and an antigen in a carrier. The
CC present sequence is an oligonucleotide, which was used in the present
CC invention. The immunostimulatory nucleic acids are useful for
CC ameliorating an immune system deficiency (the presence of tumour, cancer
CC or infectious agent) in a subject. The immunostimulatory nucleic acids
CC are also useful for desensitising a subject against the occurrence of an
CC allergic reaction in response to contact with a particular allergen.
CC The immunostimulatory nucleic acids are also useful for vaccination and
CC for treating leukaemia in a subject on administration prior to or in
CC conjunction with a chemotherapy, so that the subject's leukaemia cells
CC are more sensitive to chemotherapy. The compositions are useful for
CC inducing an antigen specific immune response in the subject. The
CC compositions can be also used to treat or prevent the symptoms of asthma.
XX
SQ Sequence 20 BP; 4 A; 6 C; 3 G; 7 T; 0 other;

Query Match 100.0%; Score 20; DB 22; Length 20;
Best Local Similarity 100.0%; Pred. No. 0.83;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 TCCATAACGTTCCTGATGCT 20
||||||||||||||||||||
Db 1 TCCATAACGTTCCTGATGCT 20

Search completed: March 1, 2003, 21:11:28
Job time : 147.25 secs

GenCore version 5.1.4_p5_4578


OM nucleic - nucleic search, using sw model

Run on: March 1, 2003, 20:25:21 ; Search time 1108.25 Seconds
(without alignments)
292.271 Million cell updates/sec

Title: US-09-818-918-45
Perfect score: 20
Sequence: 1 tccataacgttcctgatgct 20

Scoring table: IDENTITY_NUC
Gapop 10.0 , Gapext 1.0

Searched: 16154066 seqs, 8097743376 residues

Total number of hits satisfying chosen parameters: 32308132

Minimum DB seq length: 0
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Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : EST:*
1: em_estba:*
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5: em_estov:*
6: em_estpl:*
7: em_estro:*
8: em_htc:*
9: gb_est1:*
10: gb_est2:*
11: gb_htc:*
12: gb_est3:*
13: gb_est4:*
14: gb_est5:*
15: em_estfun:*
16: em_estom:*
17: gb_gss:*
18: em_gss_hum:*
19: em_gss_inv:*
20: em_gss_pln:*
21: em_gss_vrt:*
22: em_gss_fun:*
23: em_gss_mam:*
24: em_gss_mus:*
25: em_gss_other:*
26: em_gss_pro:*
27: em_gss_rod:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

| Result No. | | Score | % Query Match | Length | DB | ID | Description |
|---|---|---|---|---|---|---|---|
| 1 | | 18.4 | 92.0 | 287 | 12 | BF713668 | BF713668 ESTPBL223 |
| 2 | | 17.4 | 87.0 | 922 | 17 | CNS0102U | AL152999 Anopheles |
| 3 | | 17 | 85.0 | 253 | 10 | BB385734 | BB385734 BB385734 |
| 4 | c | 16.8 | 84.0 | 158 | 10 | BE164373 | BE164373 RC4-HT046 |
| 5 | c | 16.8 | 84.0 | 175 | 10 | BB600645 | BB600645 BB600645 |
| 6 | | 16.8 | 84.0 | 263 | 13 | BG993633 | BG993633 MR3-HT127 |
| 7 | c | 16.8 | 84.0 | 341 | 12 | BF457455 | BF457455 UI-M-BZ1- |
| 8 | c | 16.8 | 84.0 | 356 | 14 | BP013861 | BP013861 BP013861 |
| 9 | c | 16.8 | 84.0 | 365 | 10 | AV962971 | AV962971 AV962971 |
| 10 | | 16.8 | 84.0 | 396 | 10 | AW379917 | AW379917 RC4-HT025 |
| 11 | c | 16.8 | 84.0 | 452 | 17 | AZ162948 | AZ162948 SP_0073_A |
| 12 | c | 16.8 | 84.0 | 467 | 9 | AI047174 | AI047174 uh62b10.r |
| 13 | c | 16.8 | 84.0 | 472 | 9 | AJ449482 | AJ449482 AJ449482 |
| 14 | c | 16.8 | 84.0 | 496 | 10 | AV675486 | AV675486 AV675486 |
| 15 | c | 16.8 | 84.0 | 510 | 17 | AQ683537 | AQ683537 HS_5449_B |
| 16 | | 16.8 | 84.0 | 511 | 17 | BH394304 | BH394304 AG-ND-143 |
| 17 | | 16.8 | 84.0 | 526 | 17 | BH393114 | BH393114 AG-ND-141 |
| 18 | c | 16.8 | 84.0 | 545 | 10 | AV989385 | AV989385 AV989385 |
| 19 | c | 16.8 | 84.0 | 556 | 10 | AV997839 | AV997839 AV997839 |
| 20 | c | 16.8 | 84.0 | 556 | 13 | BI540503 | BI540503 453809 MA |
| 21 | | 16.8 | 84.0 | 556 | 17 | BH395140 | BH395140 AG-ND-132 |
| 22 | c | 16.8 | 84.0 | 585 | 10 | AV997837 | AV997837 AV997837 |
| 23 | c | 16.8 | 84.0 | 591 | 9 | AJ453167 | AJ453167 AJ453167 |
| 24 | c | 16.8 | 84.0 | 594 | 9 | AJ454344 | AJ454344 AJ454344 |
| 25 | c | 16.8 | 84.0 | 598 | 9 | AJ452440 | AJ452440 AJ452440 |
| 26 | c | 16.8 | 84.0 | 614 | 9 | AJ447301 | AJ447301 AJ447301 |
| 27 | c | 16.8 | 84.0 | 638 | 9 | AI981577 | AI981577 pat.pk006 |
| 28 | c | 16.8 | 84.0 | 646 | 13 | BM485876 | BM485876 pgmlc.pk0 |
| 29 | | 16.8 | 84.0 | 650 | 17 | BH375955 | BH375955 AG-ND-176 |
| 30 | | 16.8 | 84.0 | 657 | 17 | BH404989 | BH404989 AG-ND-124 |
| 31 | | 16.8 | 84.0 | 658 | 17 | BH381954 | BH381954 AG-ND-179 |
| 32 | c | 16.8 | 84.0 | 667 | 10 | BB630476 | BB630476 BB630476 |
| 33 | c | 16.8 | 84.0 | 680 | 10 | BB620836 | BB620836 BB620836 |
| 34 | c | 16.8 | 84.0 | 685 | 9 | AJ447276 | AJ447276 AJ447276 |
| 35 | | 16.8 | 84.0 | 685 | 17 | BH566082 | BH566082 BOGSL19TR |
| 36 | c | 16.8 | 84.0 | 709 | 10 | AW288365 | AW288365 MBTmAdA08 |
| 37 | | 16.8 | 84.0 | 720 | 10 | AV727742 | AV727742 AV727742 |
| 38 | c | 16.8 | 84.0 | 721 | 9 | AJ450760 | AJ450760 AJ450760 |
| 39 | | 16.8 | 84.0 | 760 | 17 | BH376393 | BH376393 AG-ND-179 |
| 40 | | 16.8 | 84.0 | 766 | 10 | AV710407 | AV710407 AV710407 |
| 41 | c | 16.8 | 84.0 | 767 | 9 | AJ452782 | AJ452782 AJ452782 |
| 42 | | 16.8 | 84.0 | 768 | 17 | BH381472 | BH381472 AG-ND-146 |
| 43 | | 16.8 | 84.0 | 778 | 17 | BH385877 | BH385877 AG-ND-166 |
| 44 | | 16.8 | 84.0 | 783 | 10 | AV659161 | AV659161 AV659161 |
| 45 | | 16.8 | 84.0 | 806 | 17 | CNS01EY0 | AL141145 Anopheles |

ALIGNMENTS

RESULT 1
BF713668
LOCUS BF713668 287 bp mRNA linear EST 31-DEC-2001
DEFINITION ESTPBL223 differential display RT-PCR clones Sus scrofa cDNA clone BL223, mRNA sequence.
ACCESSION BF713668
VERSION BF713668.1 GI:18002858
KEYWORDS EST.
SOURCE pig.
ORGANISM Sus scrofa
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Cetartiodactyla; Suina; Suidae; Sus.
REFERENCE 1 (bases 1 to 287)
AUTHORS Ponsuksili,S., Wimmers,K. and Schellander,K.
TITLE Identification of porcine liver ESTs by differential display RT-PCR
JOURNAL Unpublished (2001)
COMMENT Contact: Ponsuksili S
Institute of Animal Breeding Science
University of Bonn
Endenicher Allee 15, Bonn 53115, Germany
Seq primer: T7 SP6
High quality sequence stop: 287
POLYA=No.
FEATURES Location/Qualifiers
source 1. .287
/organism="Sus scrofa"
/db_xref="taxon:9823"
/clone="BL223"
/clone_lib="differential display RT-PCR clones"

/note="Organ: liver; cDNA fragments obtained from differential display RT-PCR banding patterns were cloned into pGEM"
BASE COUNT 74 a 64 c 63 g 86 t
ORIGIN

Query Match 92.0%; Score 18.4; DB 12; Length 287;
Best Local Similarity 95.0%; Pred. No. 1.5e+02;
Matches 19; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

Qy 1 TCCATAACGTTCCTGATGCT 20
||||| ||||||||||||||
Db 14 TCCATGACGTTCCTGATGCT 33

RESULT 2
CNS01O2U
LOCUS CNS01O2U 922 bp DNA linear GSS 14-JUN-2001
DEFINITION Anopheles gambiae GSS SP6 end of clone 25G11 of NotreDame1 library from strain PEST of Anopheles gambiae (African malaria mosquito), genomic survey sequence.
ACCESSION AL152999
VERSION AL152999.1 GI:7013918
KEYWORDS GSS.
SOURCE African malaria mosquito.
ORGANISM Anopheles gambiae
Eukaryota; Metazoa; Arthropoda; Hexapoda; Insecta; Pterygota; Neoptera; Endopterygota; Diptera; Nematocera; Culicoidea; Anopheles.
REFERENCE 1 (bases 1 to 922)
AUTHORS Genoscope.
TITLE Direct Submission
JOURNAL Submitted (16-FEB-2000) Genoscope - Centre National de Sequencage : BP 191 91006 EVRY cedex - FRANCE (E-mail : seqref@genoscope.cns.fr - Web : www.genoscope.cns.fr)
REFERENCE 2 (bases 1 to 922)
AUTHORS Roth,C.W., Brey,P.T., Ke,Z., Collins,F.H. and Weissenbach,J.
TITLE Direct Submission
JOURNAL Submitted (16-FEB-2000) BBMI, Institut Pasteur, 25, rue du Dr. Roux, Paris 75015, France
COMMENT This clone is from an A. gambiae BAC library provided by F.H. Collins and sequenced by Genoscope in collaboration with the Laboratory of Biochem. and Biol. Molec. of Insects, Institut Pasteur.
FEATURES Location/Qualifiers
source 1. .922
/organism="Anopheles gambiae"
/strain="PEST"
/db_xref="taxon:7165"
/clone="25G11"
/clone_lib="NotreDame1"
/note="end : SP6"
BASE COUNT 268 a 165 c 203 g 277 t 9 others
ORIGIN

Query Match 87.0%; Score 17.4; DB 17; Length 922;
Best Local Similarity 94.7%; Pred. No. 6.1e+02;
Matches 18; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

Qy 1 TCCATAACGTTCCTGATGC 19
||||||||||||||||| |
Db 711 TCCATAACGTTCCTGATAC 729

RESULT 3
BB385734
LOCUS BB385734 253 bp mRNA linear EST 13-JUL-2000
DEFINITION BB385734 RIKEN full-length enriched, 0 day neonate cerebellum Mus musculus cDNA clone C230040J03 3' similar to U15138 Rattus norvegicus LIC-2 dynein light intermediate chain 53/55 mRNA, mRNA sequence.
ACCESSION BB385734
VERSION BB385734.1 GI:9108520
KEYWORDS EST.
SOURCE house mouse.
ORGANISM Mus musculus
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
REFERENCE 1 (bases 1 to 253)
AUTHORS Konno,H., Aizawa,K., Akahira,S., Akiyama,J., Arakawa,T., Carninci,P., Endo,T., Fukuda,S., Fukunishi,Y., Hara,A., Hayatsu,N., Hirozane,T., Hori,F., Ishii,Y., Ishikawa,J., Ishikawa,T., Itoh,M., Izawa,M., Kadota,K., Kagawa,I., Kai,C., Kawai,J., Kikuchi,N., Kiyosawa,H., Kojima,Y., Kondo,S., Koya,S., Kurihara,C., Kusakabe,M., Matsuyama,T., Miki,R., Mizuno,Y., Nakamura,M., Oda,H., Okazaki,Y., Ono,T., Owa,C., Saito,H., Sakai,C., Sato,K., Shibata,K., Shibata,Y., Shigemoto,Y., Shinagawa,A., Shiraki,T., Sogabe,Y., Sugahara,Y., Suzuki,H., Suzuki,H., Tagawa,A., Takahashi,F., Tominaga,N., Toya,T., Tsunoda,Y., Watahiki,A., Watanabe,S., Yamamura,T., Yamanaka,I., Yano,R., Yasunishi,A., Yokota,T., Yoshida,K., Yoshiki,A., Yoshino,M., Muramatsu,M. and Hayashizaki,Y.
TITLE RIKEN Mouse ESTs (Konno,H., et al.)
JOURNAL Unpublished (2000)
COMMENT Contact: Yoshihide Hayashizaki
Laboratory for Genome Exploration Research Group, RIKEN Genomic Sciences Center(GSC), Yokohama Institute
The Institute of Physical and Chemical Research (RIKEN)
1-7-22 Suehiro-cho, Tsurumi-ku, Yokohama, Kanagawa 230-0045, Japan
Tel: 81-45-503-9222
Fax: 81-45-503-9216
Email: genome-res@gsc.riken.go.jp,
URL:http://genome.gsc.riken.go.jp/
Carninci,P., Nishiyama,Y., Westover,A., Itoh,M., Nagaoka,S., Sasaki,N., Okazaki,Y., Muramatsu,M. and Hayashizaki,Y.
Thermostabilization and thermoactivation of thermolabile enzymes by trehalose and its application for the synthesis of full length cDNA. Proc. Natl. Acad. Sci. U.S.A. 95 (2), 520-524 (1998)
Itoh,M., Kitsunai,T., Akiyama,J., Shibata,K., Izawa,M., Kawai,J., Tomaru,Y., Carninci,P., Shibata,Y., Ozawa,Y., Muramatsu,M., Okazaki,Y. and Hayashizaki,Y.
Automated filtration-based high-throughput plasmid preparation system. Genome Res. 9 (5), 463-470 (1999)
Carninci,P. and Hayashizaki,Y.
High-efficiency full-length cDNA cloning. Methods Enzymol. 303, 19-44 (1999)
Please visit our web site (http://genome.rtc.riken.go.jp) for further details.
FEATURES Location/Qualifiers
source 1. .253
/organism="Mus musculus"
/db_xref="taxon:10090"
/clone="C230040J03"
/clone_lib="RIKEN full-length enriched, 0 day neonate cerebellum"
/tissue_type="cerebellum"
/dev_stage="0 day neonate"
/lab_host="DH10B"
/note="Site_1: SalI; Site_2: BamHI; cDNA library was prepared and sequenced in Mouse Genome Encyclopedia Project of Genome Exploration Research Group in Riken Genomic Sciences Center and Genome Science Laboratory in RIKEN. Division of Experimental Animal Research in Riken contributed to prepare mouse tissues. 1st strand cDNA was primed with a primer [5' GAGAGAGAGAAGGATCCAAGAGCTCTTTTTTTTTTTTTTTTVN 3'], cDNA was prepared by using trehalose thermo-activated reverse transcriptase and subsequently enriched for full-length by cap-trapper. cDNA went through one round of normalization to Rot = 20.0 and subtraction to Rot = 479.0. Second strand cDNA was prepared with the primer adapter of sequence [5' GAGAGAGATTCTCGAGTTAATTAAATTAATCCCCCCCCCCCCC 3']. cDNA was cleaved with XhoI and BamHI. Vector: a modified pBluescript KS(+) after bulk excision from Lambda FLC I."
BASE COUNT 62 a 60 c 37 g 94 t
ORIGIN

```
  Query Match            85.0%;  Score 17;  DB 10;  Length 253;
  Best Local Similarity  100.0%;  Pred. No. 6.5e+02;
  Matches   17;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       1 TCCATAACGTTCCTGAT 17
           |||||||||||||||||
Db      23 TCCATAACGTTCCTGAT 39


RESULT 4
BE164373/c
LOCUS       BE164373                158 bp    mRNA    linear   EST 21-JUN-2000
DEFINITION  RC4-HT0469-230300-014-h03 HT0469 Homo sapiens cDNA, mRNA sequence.
ACCESSION   BE164373
VERSION     BE164373.1  GI:8627198
KEYWORDS    EST.
SOURCE      human.
  ORGANISM  Homo sapiens
            Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
            Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
REFERENCE   1  (bases 1 to 158)
  AUTHORS   Dias Neto,E., Garcia Correa,R., Verjovski-Almeida,S., Briones,M.R.,
            Nagai,M.A., da Silva,W. Jr., Zago,M.A., Bordin,S., Costa,F.F.,
            Goldman,G.H., Carvalho,A.F., Matsukuma,A., Baia,G.S., Simpson,D.H.,
            Brunstein,A., deOliveira,P.S., Bucher,P., Jongeneel,C.V., O'Hare
            ,M.J., Soares,F., Brentani,R.R., Reis,L.F., de Souza,S.J. and
            Simpson,A.J.
  TITLE     Shotgun sequencing of the human transcriptome with ORF expressed
            sequence tags
  JOURNAL   Proc. Natl. Acad. Sci. U.S.A. 97 (7), 3491-3496 (2000)
  MEDLINE   20202663
COMMENT     Contact: Simpson A.J.G.
            Laboratory of Cancer Genetics
            Ludwig Institute for Cancer Research
            Rua Prof. Antonio Prudente 109, 4 andar, 01509-010, Sao Paulo-SP,
            Brazil
            Tel: +55-11-2704922
            Fax: +55-11-2707001
            Email: asimpson@ludwig.org.br
            This sequence was derived from the FAPESP/LICR Human Cancer Genome
            Project. This entry can be seen in the following URL
            (http://www.ludwig.org.br/scripts/gethtml2.pl?tl=&t2=RC4-HT0469-230
            300-014-h03&t3=2000-03-23&t4=1)
            Seq primer: puc 18 forward
            High quality sequence start: 11
            High quality sequence stop: 158.
FEATURES             Location/Qualifiers
     source          1. .158
                     /organism="Homo sapiens"
                     /db_xref="taxon:9606"
                     /clone_lib="HT0469"
                     /dev_stage="Adult"
                     /note="Organ: head_neck; Vector: puc18; Site_1: SmaI;
                     Site_2: SmaI; A mini-library was made by cloning products
                     derived from  ORESTES PCR (U.S. Letters Patent application
                     No. 196,716 -  Ludwig Institute for Cancer Research)
                     profiles into  the pUC 18 vector. Reverse transcription of
                     tissue mRNA and cDNA amplification were performed under
                     low stringency conditions."
BASE COUNT       35 a     22 c     57 g     44 t
ORIGIN

  Query Match            84.0%;  Score 16.8;  DB 10;  Length 158;
  Best Local Similarity  90.0%;  Pred. No. 7.1e+02;
  Matches   18;  Conservative    0;  Mismatches    2;  Indels    0;  Gaps    0;

Qy       1 TCCATAACGTTCCTGATGCT 20
           |||||||| ||||||| ||
Db      23 TCCATAACGCTCCTGATACT 4


RESULT 5
BB600645/c
LOCUS       BB600645                175 bp    mRNA    linear   EST 01-DEC-2000
DEFINITION  BB600645 RIKEN full-length enriched, 12 days embryo eyeball Mus
            musculus cDNA clone D230005P20 5', mRNA sequence.
ACCESSION   BB600645
VERSION     BB600645.1  GI:11509246
KEYWORDS    EST.
SOURCE      house mouse.
  ORGANISM  Mus musculus
            Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
            Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
REFERENCE   1  (bases 1 to 175)
  AUTHORS   Aizawa,K., Akahira,S., Akimura,T., Arai,A., Arakawa,T., Carninci,P.
            , Hanagaki,T., Hayatsu,N., Hiraoka,T., Hirozane,T., Hodoyama,Y.,
            Imotani,K., Ishii,Y., Itoh,M., Izawa,M., Kawai,J., Kojima,Y., Konno
            ,H., Kusakabe,M., Matsuyama,T., Miyazaki,A., Nakamura,M., Nishi,K.,
            Nomura,K., Numazaki,R., Okazaki,Y., Okido,T., Owa,C., Sakai,C.,
            Sakai,K., Sasaki,D., Sato,K., Shibata,K., Shibata,Y., Shinagawa,A.,
            Shiraki,T., Sogabe,Y., Suzuki,H., Tagawa,A., Takahashi,F., Tanaka
            ,T., Toya,T., Watahiki,A., Yamamura,T., Yasunishi,A., Yoshida,K.,
            Yoshiki,A., Muramatsu,M. and Hayashizaki,Y.
  TITLE     RIKEN Mouse ESTs (Aizawa,K. et al. 2000)
  JOURNAL   Unpublished (2000)
COMMENT     Contact: Yoshihide Hayashizaki
            Laboratory for Genome Exploration Research Group, RIKEN Genomic
            Sciences Center(GSC), Yokohama Institute
            The Institute of Physical and Chemical Research (RIKEN)
            1-7-22 Suehiro-cho, Tsurumi-ku, Yokohama, Kanagawa 230-0045, Japan
            Tel: 81-45-503-9222
            Fax: 81-45-503-9216
            Email: genome-res@gsc.riken.go.jp,
            URL:http://genome.gsc.riken.go.jp/
            Carninci,P., Nishiyama,Y., Westover,A., Itoh,M., Nagaoka,S., Sasaki
            ,N., Okazaki,Y., Muramatsu,M. and Hayashizaki,Y.
            Thermostabilization and thermoactivation of thermolabile enzymes by
            trehalose and its application for the synthesis of full length
            cDNA. Proc. Natl. Acad. Sci. U.S.A. 95 (2), 520-524 (1998)
             Itoh,M., Kitsunai,T., Akiyama,J., Shibata,K., Izawa,M., Kawai,J.,
            Tomaru,Y., Carninci,P., Shibata,Y., Ozawa,Y., Muramatsu,M., Okazaki
            ,Y. and Hayashizaki,Y.
             Automated filtration-based high-throughput plasmid preparation
            system. Genome Res. 9 (5), 463-470 (1999)
             Carninci,P. and Hayashizaki,Y.
             High-efficiency full-length cDNA cloning. Methods Enzymol. 303,
            19-44 (1999)
             Please visit our web site (http://genome.rtc.riken.go.jp) for
            further details.
FEATURES             Location/Qualifiers
     source          1. .175
                     /organism="Mus musculus"
                     /db_xref="taxon:10090"
                     /clone="D230005P20"
                     /clone_lib="RIKEN full-length enriched, 12 days embryo
                     eyeball"
                     /tissue_type="eyeball"
                     /dev_stage="12 days embryo"
                     /lab_host="DH10B"
                     /note="Site_1: SalI; Site_2: BamHI; cDNA library was
                     prepared and sequenced in Mouse Genome Encyclopedia
                     Project of Genome Exploration Research Group in Riken
                     Genomic Sciences Center and Genome Science Laboratory in
                     RIKEN. Division of Experimental Animal Research in Riken
                     contributed to prepare mouse tissues. 1st strand cDNA was
                     primed with a primer [5'
                     GAGAGAGAGAGCGGCCGCAACTCGAGTTTTTTTTTTTTTTTVN 3'], cDNA was
                     prepared by using trehalose thermo-activated reverse
                     transcriptase and subsequently enriched for full-length by
                     cap-trapper. Second strand cDNA was prepared with the
                     primer adapter of sequence [5'
                     GAGAGAGAGATTCTCGAGTTAATTAAATTAATCCCCCCCCCCCCC 3']. cDNA
                     was cleaved with BamHI and XhoI. Vector: a modified
                     pBluescript KS(+) after bulk excision from Lambda FLC I."
BASE COUNT       33 a     36 c     64 g     41 t      1 others
```

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ORIGIN

  Query Match             84.0%;  Score 16.8;  DB 10;  Length 175;
  Best Local Similarity   90.0%;  Pred. No. 7.3e+02;
  Matches   18;  Conservative    0;  Mismatches    2;  Indels    0;  Gaps    0;

Qy      1 TCCATAACGTTCCTGATGCT 20
          |||||||||||||| | ||
Db    126 TCCATAACGTTCCTGGTCCT 107


RESULT 6
BG993633
LOCUS       BG993633                 263 bp    mRNA    linear   EST 13-JUN-2001
DEFINITION  MR3-HT1277-080201-007-e03 HT1277 Homo sapiens cDNA, mRNA sequence.
ACCESSION   BG993633
VERSION     BG993633.1  GI:14397703
KEYWORDS    EST.
SOURCE      human.
  ORGANISM  Homo sapiens
            Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
            Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
REFERENCE   1  (bases 1 to 263)
  AUTHORS   Dias Neto,E., Garcia Correa,R., Verjovski-Almeida,S., Briones,M.R.,
            Nagai,M.A., da Silva,W. Jr., Zago,M.A., Bordin,S., Costa,F.F.,
            Goldman,G.H., Carvalho,A.F., Matsukuma,A., Baia,G.S., Simpson,D.H.,
            Brunstein,A., deOliveira,P.S., Bucher,P., Jongeneel,C.V., O'Hare
            ,M.J., Soares,F., Brentani,R.R., Reis,L.F., de Souza,S.J. and
            Simpson,A.J.
  TITLE     Shotgun sequencing of the human transcriptome with ORF expressed
            sequence tags
  JOURNAL   Proc. Natl. Acad. Sci. U.S.A. 97 (7), 3491-3496 (2000)
  MEDLINE   20202663
COMMENT     Contact: Simpson A.J.G.
            Laboratory of Cancer Genetics
            Ludwig Institute for Cancer Research
            Rua Prof. Antonio Prudente 109, 4 andar, 01509-010, Sao Paulo-SP,
            Brazil
            Tel: +55-11-2704922
            Fax: +55-11-2707001
            Email: asimpson@ludwig.org.br
            This sequence was derived from the FAPESP/LICR Human Cancer Genome
            Project. This entry can be seen in the following URL
            (http://www.ludwig.org.br/scripts/gethtml2.pl?tl=MR3&t2=MR3-HT1277-
            080201-007-e03&t3=2001-02-08&t4=1)
            Seq primer: puc 18 forward
            High quality sequence stop: 256.
FEATURES             Location/Qualifiers
     source          1. .263
                     /organism="Homo sapiens"
                     /db_xref="taxon:9606"
                     /clone_lib="HT1277"
                     /dev_stage="Adult"
                     /note="Organ: head_neck; Vector: puc18; Site_1: SmaI;
                     Site_2: SmaI; A mini-library was made by cloning products
                     derived from  ORESTES PCR (U.S. Letters Patent application
                     No. 196,716 -  Ludwig Institute for Cancer Research)
                     profiles into  the pUC 18 vector. Reverse transcription of
                     tissue mRNA and cDNA amplification were performed under
                     low stringency conditions."
BASE COUNT       47 a     60 c     37 g    119 t
ORIGIN

  Query Match             84.0%;  Score 16.8;  DB 13;  Length 263;
  Best Local Similarity   90.0%;  Pred. No. 8.2e+02;
  Matches   18;  Conservative    0;  Mismatches    2;  Indels    0;  Gaps    0;

Qy      1 TCCATAACGTTCCTGATGCT 20
          |||||||| |||||| ||||
Db    145 TCCATAACATTCCTGGTGCT 164


RESULT 7
BF457455/c
LOCUS       BF457455                 341 bp    mRNA    linear   EST 01-DEC-2000
DEFINITION  UI-M-BZ1-blg-h-01-0-UI.s1 NIH_BMAP_MHI2_S1 Mus musculus cDNA clone
            UI-M-BZ1-blg-h-01-0-UI 3', mRNA sequence.
ACCESSION   BF457455
VERSION     BF457455.1  GI:11523624
KEYWORDS    EST.
SOURCE      house mouse.
  ORGANISM  Mus musculus
            Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
            Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
REFERENCE   1  (bases 1 to 341)
  AUTHORS   Bonaldo,M.F., Lennon,G. and Soares,M.B.
  TITLE     Normalization and subtraction: two approaches to facilitate gene
            discovery
  JOURNAL   Genome Res. 6 (9), 791-806 (1996)
  MEDLINE   97044477
COMMENT     Contact: Chin, H
            National Institute of Mental Health
            6001 Executive Blvd. Room 7N-7190, MSC 9643, Bethesda, MD
            20892-9643, USA
            Tel: 301 443 1706
            Fax: 301 443 9890
            Email: mEST@mail.nih.gov
            The sequence contained an oligo-dT track that was present in the
            oligonucleotide that was used to prime the synthesis of first
            strand cDNA and therefore this may represent a bonafide poly A
            tail. The sequence tag present in the cDNA between the NotI site
            and the oligo-dT track served to verify it as a clone from the
            hippocampus tissue cDNA Library Preparation: M.B. Soares Lab Clone
            distribution: Researchers may obtain BMAP cDNA clones from RESEARCH
            GENETICS. It should be noted that Bento Soares is generating a
            small number of additional specialized non-redundant arrays of BMAP
            cDNAs whose availability will be considered under appropriate and
            limited collaborative arrangements
            Seq primer: M13 Forward
            POLYA=Yes.
FEATURES             Location/Qualifiers
     source          1. .341
                     /organism="Mus musculus"
                     /strain="C57BL/6J"
                     /db_xref="taxon:10090"
                     /clone="UI-M-BZ1-blg-h-01-0-UI"
                     /clone_lib="NIH_BMAP_MHI2_S1"
                     /dev_stage="27-32 days"
                     /lab_host="DH10B (Life Technologies)"
                     /note="Vector: pT7T3D-Pac (Pharmacia) with a modified
                     polylinker; Site_1: Not I; Site_2: Eco RI; The
                     NIH_BMAP_MHI2_S1 library is a subtracted library derived
                     from  NIH_BMAP_MHI2. NIH_BMAP_MHI2 is a library derived
                     from mouse hippocampus tissue. For a detailed description
                     of the library from which this clone was  derived, please
                     visit our web site at brainest.eng.uiowa.edu.
                     TAG_LIB=NIH_BMAP_MHI2_S1
                     TAG_TISSUE=hippocampus
                     TAG_SEQ=TAGTC"
BASE COUNT       83 a     95 c     85 g     78 t
ORIGIN

  Query Match             84.0%;  Score 16.8;  DB 12;  Length 341;
  Best Local Similarity   90.0%;  Pred. No. 8.9e+02;
  Matches   18;  Conservative    0;  Mismatches    2;  Indels    0;  Gaps    0;

Qy      1 TCCATAACGTTCCTGATGCT 20
          |||||| |||| ||||||||
Db    107 TCCATATCGTTTCTGATGCT 88


RESULT 8
BP013861/c
LOCUS       BP013861                 356 bp    mRNA    linear   EST 15-MAR-2002
DEFINITION  BP013861 Nori Satoh unpublished cDNA library, young adult Ciona
            intestinalis cDNA clone ciad59i24 5', mRNA sequence.
```

```
ACCESSION   BP013861
VERSION     BP013861.1  GI:19505338
KEYWORDS    EST.
SOURCE      Ciona intestinalis.
  ORGANISM  Ciona intestinalis
            Eukaryota; Metazoa; Chordata; Urochordata; Ascidiacea; Enterogona;
            Phlebobranchia; Cionidae; Ciona.
REFERENCE   1  (bases 1 to 356)
  AUTHORS   Satoh,N., Satou,Y., Kohara,Y. and Shin-i,T.
  TITLE     Expressed genes in Ciona intestinalis
  JOURNAL   Unpublished (2000)
COMMENT     Contact: Nori Satoh
            Department of Zoology
            Kyoto University
            Sakyo-ku, Kyoto, Kyoto 606-8502, Japan
            Tel: 81-75-753-4081
            Fax: 81-75-705-1113
            Email: satoh@ascidian.zool.kyoto-u.ac.jp.
FEATURES             Location/Qualifiers
     source          1. .356
                     /organism="Ciona intestinalis"
                     /db_xref="taxon:7719"
                     /clone="ciad59i24"
                     /clone_lib="Nori Satoh unpublished cDNA library, young
                     adult"
                     /tissue_type="whole animal"
                     /dev_stage="young adult"
                     /note="Vector: pBluescript SK"
BASE COUNT      106 a     75 c     74 g    101 t
ORIGIN

  Query Match             84.0%;  Score 16.8;  DB 14;  Length 356;
  Best Local Similarity   90.0%;  Pred. No. 9e+02;
  Matches   18;  Conservative    0;  Mismatches    2;  Indels    0;  Gaps    0;

Qy       1 TCCATAACGTTCCTGATGCT 20
           |||||||||||| | |||||
Db     130 TCCATAACGTTCATCATGCT 111


RESULT 9
AV962971/c
LOCUS       AV962971                365 bp    mRNA    linear   EST 14-MAR-2002
DEFINITION  AV962971 Nori Satoh unpublished cDNA library, cleavage stage embryo
            Ciona intestinalis cDNA clone cicl22h07 5', mRNA sequence.
ACCESSION   AV962971
VERSION     AV962971.1  GI:19451270
KEYWORDS    EST.
SOURCE      Ciona intestinalis.
  ORGANISM  Ciona intestinalis
            Eukaryota; Metazoa; Chordata; Urochordata; Ascidiacea; Enterogona;
            Phlebobranchia; Cionidae; Ciona.
REFERENCE   1  (bases 1 to 365)
  AUTHORS   Satoh,N., Satou,Y., Kohara,Y. and Shin-i,T.
  TITLE     Expressed genes in Ciona intestinalis
  JOURNAL   Unpublished (2000)
COMMENT     Contact: Nori Satoh
            Department of Zoology
            Kyoto University
            Sakyo-ku, Kyoto, Kyoto 606-8502, Japan
            Tel: 81-75-753-4081
            Fax: 81-75-705-1113
            Email: satoh@ascidian.zool.kyoto-u.ac.jp.
FEATURES             Location/Qualifiers
     source          1. .365
                     /organism="Ciona intestinalis"
                     /db_xref="taxon:7719"
                     /clone="cicl22h07"
                     /clone_lib="Nori Satoh unpublished cDNA library, cleavage
                     stage embryo"
                     /tissue_type="whole animal"
                     /dev_stage="cleavage stage embryo"
                     /note="Vector: pBluescript SK"
BASE COUNT      101 a     92 c     74 g     97 t      1 others
ORIGIN

  Query Match             84.0%;  Score 16.8;  DB 10;  Length 365;
  Best Local Similarity   90.0%;  Pred. No. 9e+02;
  Matches   18;  Conservative    0;  Mismatches    2;  Indels    0;  Gaps    0;

Qy       1 TCCATAACGTTCCTGATGCT 20
           |||||||||||| | |||||
Db      52 TCCATAACGTTCATCATGCT 33


RESULT 10
AW379917
LOCUS       AW379917                396 bp    mRNA    linear   EST 04-FEB-2000
DEFINITION  RC4-HT0257-251199-011-e07 HT0257 Homo sapiens cDNA, mRNA sequence.
ACCESSION   AW379917
VERSION     AW379917.1  GI:6884576
KEYWORDS    EST.
SOURCE      human.
  ORGANISM  Homo sapiens
            Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
            Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
REFERENCE   1  (bases 1 to 396)
  AUTHORS   HCGP http://www.ludwig.org.br/ORESTES.
  TITLE     The FAPESP/LICR Human Cancer Genome Project
  JOURNAL   Unpublished (1999)
COMMENT     Contact: Simpson A.J.G.
            Laboratory of Cancer Genetics
            Ludwig Institute for Cancer Research
            Rua Prof. Antonio Prudente 109, 4 andar, 01509-010, Sao Paulo-SP,
            Brazil
            Tel: +55-11-2704922
            Fax: +55-11-2707001
            Email: asimpson@ludwig.org.br
            This sequence was derived from the FAPESP/LICR Human Cancer Genome
            Project. This entry can be seen in the following URL
            (http://www.ludwig.org.br/scripts/gethtml2.pl?t1=RC4&t2=RC4-HT0257-
            251199-011-e07&t3=1999-11-25&t4=1)
            Seq primer: puc 18 forward
            High quality sequence start: 29
            High quality sequence stop: 396.
FEATURES             Location/Qualifiers
     source          1. .396
                     /organism="Homo sapiens"
                     /db_xref="taxon:9606"
                     /clone_lib="HT0257"
                     /dev_stage="Adult"
                     /note="Organ: head_neck; Vector: puc18; Site_1: SmaI;
                     Site_2: SmaI; A mini-library was made by cloning products
                     derived from  ORESTES PCR (U.S. Letters Patent application
                     No. 196,716 -  Ludwig Institute for Cancer Research)
                     profiles into  the pUC 18 vector. Reverse transcription of
                     tissue mRNA and cDNA amplification were performed under
                     low stringency conditions."
BASE COUNT       85 a    119 c     88 g    104 t
ORIGIN

  Query Match             84.0%;  Score 16.8;  DB 10;  Length 396;
  Best Local Similarity   90.0%;  Pred. No. 9.2e+02;
  Matches   18;  Conservative    0;  Mismatches    2;  Indels    0;  Gaps    0;

Qy       1 TCCATAACGTTCCTGATGCT 20
           |||||||| |||||| ||||
Db     338 TCCATAACATTCCTGGTGCT 357


RESULT 11
AZ162948/c
LOCUS       AZ162948                452 bp    DNA     linear   GSS 29-AUG-2000
DEFINITION  SP_0073_A1_C02_SP6E Strongylocentrotus purpuratus, purple sea
            urchin, sperm genomic BAC library Strongylocentrotus purpuratus
            genomic clone Plate=73 Col=3 Row=E, DNA sequence.
```

```
ACCESSION   AZ162948
VERSION     AZ162948.1  GI:8315643
KEYWORDS    GSS.
SOURCE      Strongylocentrotus purpuratus.
  ORGANISM  Strongylocentrotus purpuratus
            Eukaryota; Metazoa; Echinodermata; Eleutherozoa; Echinozoa;
            Echinoidea; Euechinoidea; Echinacea; Echinoida;
            Strongylocentrotidae; Strongylocentrotus.
REFERENCE   1  (bases 1 to 452)
  AUTHORS   Cameron,R.A., Mahairas,G., Rast,J.P., Martinez,P., Biondi,T.R.,
            Swartzell,S., Wallace,J.C., Poustka,A.J., Livingston,B.T., Wray
            ,G.A., Ettensohn,C.A., Lehrach,H., Britten,R.J, Davidson,E.H. and
            Hood,L.
  TITLE     A sea urchin genome project: Sequence scan, virtual map, and
            additional resources
  JOURNAL   Proc. Natl. Acad. Sci. U.S.A. 97 (17), 9514-9518 (2000)
  MEDLINE   20402566
COMMENT     Contact: Cameron, RA, Davidson, EH, Hood, L
            Division of Biology 156-29
            California Institute of Technology
            Pasadena California 91125, USA
            Tel: (626) 395-8421
            Fax: (626) 793-3047
            Email: acameron@caltech.edu
            Plate: 73  row: E  column: 3
            Seq primer: SP6
            Class: BAC ends
            High quality sequence stop: 452.
FEATURES             Location/Qualifiers
     source          1. .452
                     /organism="Strongylocentrotus purpuratus"
                     /db_xref="taxon:7668"
                     /clone="Plate=73 Col=3 Row=E"
                     /clone_lib="Strongylocentrotus purpuratus, purple sea
                     urchin, sperm genomic BAC library"
                     /note="Organ: sperm; Vector: BACe3.6; BAC Clones in E-Coli
                     DH10B"
BASE COUNT      143 a     61 c     84 g    163 t      1 others
ORIGIN

  Query Match             84.0%;  Score 16.8;  DB 17;  Length 452;
  Best Local Similarity   90.0%;  Pred. No. 9.6e+02;
  Matches   18;  Conservative    0;  Mismatches    2;  Indels    0;  Gaps    0;

Qy      1 TCCATAACGTTCCTGATGCT 20
          |||| || ||||||||||||
Db    329 TCCAAAATGTTCCTGATGCT 310


RESULT 12
AI047174/c
LOCUS       AI047174                467 bp    mRNA    linear   EST 08-JUL-1998
DEFINITION  uh62b10.r1 Soares_embryonic_stem_cell_NMES Mus musculus cDNA clone
            IMAGE:1749979 5', mRNA sequence.
ACCESSION   AI047174
VERSION     AI047174.1  GI:3295461
KEYWORDS    EST.
SOURCE      house mouse.
  ORGANISM  Mus musculus
            Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
            Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
REFERENCE   1  (bases 1 to 467)
  AUTHORS   Marra,M., Hillier,L., Allen,M., Bowles,M., Dietrich,N., Dubuque,T.,
            Geisel,S., Kucaba,T., Lacy,M., Le,M., Martin,J., Morris,M.,
            Schellenberg,K., Steptoe,M., Tan,F., Underwood,K., Moore,B.,
            Theising,B., Wylie,T., Lennon,G., Soares,B., Wilson,R. and
            Waterston,R.
  TITLE     The WashU-HHMI Mouse EST Project
  JOURNAL   Unpublished (1996)
COMMENT     Contact: Marra M/Mouse EST Project
            WashU-HHMI Mouse EST Project
            Washington University School of MedicineP
            4444 Forest Park Parkway, Box 8501, St. Louis, MO 63108
            Tel: 314 286 1800
            Fax: 314 286 1810
            Email: mouseest@watson.wustl.edu
            This clone is available royalty-free through LLNL ; contact the
            IMAGE Consortium (info@image.llnl.gov) for further information.
            MGI:961791
            Seq primer: -28m13 rev2 ET from Amersham
            High quality sequence stop: 460.
FEATURES             Location/Qualifiers
     source          1. .467
                     /organism="Mus musculus"
                     /db_xref="taxon:10090"
                     /clone="IMAGE:1749979"
                     /clone_lib="Soares_embryonic_stem_cell_NMES"
                     /cell_type="embryonic stem cell"
                     /lab_host="DH10B"
                     /note="Organ: bone marrow; Vector: pT7T3D-Pac (Pharmacia)
                     with a modified polylinker; Site_1: Not I; Site_2: Eco RI;
                     1st strand cDNA was primed with a Not I - oligo(dT) primer
                     [5'
                     TGTTACCAATCTGAAGTGGGAGCGGCCGCATTGTTTTTTTTTTTTTTTTTTTTTTTT
                     3']; double-stranded cDNA was ligated to Eco RI adaptors
                     (Pharmacia), digested with Not I and cloned into the Not
                     I and Eco RI sites of the modified pT7T3 vector. Library
                     went through two rounds of normalization, and was
                     constructed by Bento Soares and M.Fatima Bonaldo."
BASE COUNT      135 a     77 c     85 g    170 t
ORIGIN

  Query Match             84.0%;  Score 16.8;  DB 9;  Length 467;
  Best Local Similarity   90.0%;  Pred. No. 9.7e+02;
  Matches   18;  Conservative    0;  Mismatches    2;  Indels    0;  Gaps    0;

Qy      1 TCCATAACGTTCCTGATGCT 20
          || | ||||||||||||||||
Db    334 TCTAGAACGTTCCTGATGCT 315


RESULT 13
AJ449482/c
LOCUS       AJ449482                472 bp    mRNA    linear   EST 19-APR-2002
DEFINITION  AJ449482 riken1 Gallus gallus cDNA clone 22c4r1, mRNA sequence.
ACCESSION   AJ449482
VERSION     AJ449482.1  GI:20216703
KEYWORDS    EST.
SOURCE      chicken.
  ORGANISM  Gallus gallus
            Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
            Archosauria; Aves; Neognathae; Galliformes; Phasianidae;
            Phasianinae; Gallus.
REFERENCE   1  (bases 1 to 472)
  AUTHORS   Buerstedde,J.M.
  TITLE     Gallus gallus bursal lymphocyte EST
  JOURNAL   Unpublished (2002)
COMMENT     Contact: Buerstedde JM
            Cellular Immunology
            Heinrich-Pette-Institute
            Martinistr. 52, 20251 Hamburg, Germany
            Email: URL: http://genetics.hpi.uni-hamburg.de/dt40est.html.
FEATURES             Location/Qualifiers
     source          1. .472
                     /organism="Gallus gallus"
                     /db_xref="taxon:9031"
                     /clone="22c4r1"
                     /clone_lib="riken1"
                     /cell_type="bursal lymphocyte"
                     /dev_stage="2-3 weeks old"
                     /note="CB inbred strain"
BASE COUNT      125 a    103 c    157 g     86 t      1 others
ORIGIN

  Query Match             84.0%;  Score 16.8;  DB 9;  Length 472;
  Best Local Similarity   90.0%;  Pred. No. 9.7e+02;
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  Matches   18;  Conservative    0;  Mismatches    2;  Indels    0;  Gaps    0;

Qy      1 TCCATAACGTTCCTGATGCT 20
          |||||||| ||| |||||||
Db    449 TCCATAACATTCTTGATGCT 430


RESULT 14
AV675486/c
LOCUS       AV675486                 496 bp    mRNA    linear   EST 05-OCT-2000
DEFINITION  AV675486 Nori Satoh unpublished cDNA library Ciona intestinalis
            cDNA clone citb12j10 5', mRNA sequence.
ACCESSION   AV675486
VERSION     AV675486.1  GI:10113485
KEYWORDS    EST.
SOURCE      Ciona intestinalis.
  ORGANISM  Ciona intestinalis
            Eukaryota; Metazoa; Chordata; Urochordata; Ascidiacea; Enterogona;
            Phlebobranchia; Cionidae; Ciona.
REFERENCE   1  (bases 1 to 496)
  AUTHORS   Satoh,N., Satou,Y., Kohara,Y. and Shin-i,T.
  TITLE     Expressed genes in Ciona intestinalis
  JOURNAL   Unpublished (2000)
COMMENT     Contact: Nori Satoh
            Department of Zoology
            Kyoto University
            Sakyo-ku, Kyoto, Kyoto 606-8502, Japan
            Tel: 81-75-753-4081
            Fax: 81-75-705-1113
            Email: satoh@ascidian.zool.kyoto-u.ac.jp.
FEATURES             Location/Qualifiers
     source          1. .496
                     /organism="Ciona intestinalis"
                     /db_xref="taxon:7719"
                     /clone="citb12j10"
                     /clone_lib="Nori Satoh unpublished cDNA library"
                     /tissue_type="whole animal"
                     /dev_stage="tailbud"
                     /note="Vector: pBluescript SK"
BASE COUNT      133 a    127 c     99 g    136 t      1 others
ORIGIN

  Query Match             84.0%;  Score 16.8;  DB 10;  Length 496;
  Best Local Similarity   90.0%;  Pred. No. 9.8e+02;
  Matches   18;  Conservative    0;  Mismatches    2;  Indels    0;  Gaps    0;

Qy      1 TCCATAACGTTCCTGATGCT 20
          |||||||||||| | |||||
Db    105 TCCATAACGTTCATCATGCT 86


RESULT 15
AQ683537/c
LOCUS       AQ683537                 510 bp    DNA     linear   GSS 28-JUN-1999
DEFINITION  HS_5449_B1_D02_SP6E RPCI-11 Human Male BAC Library Homo sapiens
            genomic clone Plate=1025 Col=3 Row=H, DNA sequence.
ACCESSION   AQ683537
VERSION     AQ683537.1  GI:5259520
KEYWORDS    GSS.
SOURCE      human.
  ORGANISM  Homo sapiens
            Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
            Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
REFERENCE   1  (bases 1 to 510)
  AUTHORS   Mahairas,G.G., Wallace,J.C., Smith,K., Swartzell,S., Holzman,T.,
            Keller,A., Shaker,R., Furlong,J., Young,J., Zhao,S., Adams,M.D. and
            Hood,L.
  TITLE     Sequence-tagged connectors: A sequence approach to mapping and
            scanning the human genome
  JOURNAL   Proc. Natl. Acad. Sci. U.S.A. 96 (17), 9739-9744 (1999)
  MEDLINE   99380589
COMMENT     Contact: Mahairas GG, Wallace JC, Hood L
            High Throughput Sequencing Center
            University of Washington
            401 Queen Anne Avenue North, Seattle, WA 98109, USA
            Tel: (206) 616-3618
            Fax: (206) 616-3887
            Email: jwallace@u.washington.edu
            Clones are derived from the human BAC library RPCI-11. For BAC
            library availability, please contact Pieter de Jong
            (pieter@dejong.med.buffalo.edu). Clones may be purchased from
            BACPAC Resources (http://bacpac.med.buffalo.edu/ordering_bac.htm)
            or from Resear h Genetics (info@resgen.com). BAC end Web Server:
            http://www.htsc.washington.edu
            Plate: 1025  row: H  column: 3
            Seq primer: SP6
            Class: BAC ends
            High quality sequence stop: 510.
FEATURES             Location/Qualifiers
     source          1. .510
                     /organism="Homo sapiens"
                     /db_xref="taxon:9606"
                     /clone="Plate=1025 Col=3 Row=H"
                     /clone_lib="RPCI-11 Human Male BAC Library"
                     /sex="male"
                     /note="Vector: pBACe3.6; Site_1: EcoRI; Site_2: EcoRI;
                     Male blood DNA was isolated from one randomly chosen donor
                     and partially digested with a combination of EcoRI and
                     EcoRI Methylase. Size selected DNA was cloned into the
                     pBACe3.6 vector at EcoRI sites"
BASE COUNT      130 a     95 c    111 g    170 t      4 others
ORIGIN

  Query Match             84.0%;  Score 16.8;  DB 17;  Length 510;
  Best Local Similarity   90.0%;  Pred. No. 9.9e+02;
  Matches   18;  Conservative    0;  Mismatches    2;  Indels    0;  Gaps    0;

Qy      1 TCCATAACGTTCCTGATGCT 20
          | |||||||||||||| ||||
Db    445 TTCATAACGTTCCTGGTGCT 426


Search completed: March  1, 2003, 22:50:11
Job time : 1112.25 secs
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GenCore version 5.1.4_p5_4578


OM nucleic - nucleic search, using sw model

Run on: March 1, 2003, 21:01:26 ; Search time 41.5 Seconds
(without alignments)
147.796 Million cell updates/sec

Title: US-09-818-918-45
Perfect score: 20
Sequence: 1 tccataacgttcctgatgct 20

Scoring table: IDENTITY_NUC
Gapop 10.0 , Gapext 1.0

Searched: 441362 seqs, 153338381 residues

Total number of hits satisfying chosen parameters: 882724

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : Issued_Patents_NA:*
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2: /cgn2_6/ptodata/1/ina/5B_COMB.seq:*
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6: /cgn2_6/ptodata/1/ina/backfiles1.seq:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

| Result No. | Score | % Query Match | Length | DB | ID | Description |
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| 1 | 20 | 100.0 | 20 | 4 | US-08-738-652-3 | Sequence 3, Appli |
| 2 | 20 | 100.0 | 20 | 4 | US-08-738-652-45 | Sequence 45, Appl |
| 3 | 20 | 100.0 | 20 | 4 | US-09-286-098-49 | Sequence 49, Appl |
| 4 | 20 | 100.0 | 20 | 4 | US-08-960-774-3 | Sequence 3, Appli |
| 5 | 20 | 100.0 | 20 | 4 | US-09-325-193A-43 | Sequence 43, Appl |
| 6 | 20 | 100.0 | 20 | 4 | US-09-191-170-44 | Sequence 44, Appl |
| 7 | 18.4 | 92.0 | 20 | 2 | US-09-133-774-11 | Sequence 11, Appl |
| 8 | 18.4 | 92.0 | 20 | 3 | US-08-386-063-25 | Sequence 25, Appl |
| 9 | 18.4 | 92.0 | 20 | 3 | US-09-303-862-11 | Sequence 11, Appl |
| 10 | 18.4 | 92.0 | 20 | 4 | US-08-386-063-25 | Sequence 25, Appl |
| 11 | 18.4 | 92.0 | 20 | 4 | US-08-738-652-7 | Sequence 7, Appli |
| 12 | 18.4 | 92.0 | 20 | 4 | US-08-738-652-35 | Sequence 35, Appl |
| 13 | 18.4 | 92.0 | 20 | 4 | US-08-738-652-44 | Sequence 44, Appl |
| 14 | 18.4 | 92.0 | 20 | 4 | US-08-738-652-54 | Sequence 54, Appl |
| 15 | 18.4 | 92.0 | 20 | 4 | US-09-286-098-24 | Sequence 24, Appl |
| 16 | 18.4 | 92.0 | 20 | 4 | US-08-960-774-7 | Sequence 7, Appli |
| 17 | 18.4 | 92.0 | 20 | 4 | US-08-960-774-88 | Sequence 88, Appl |
| 18 | 18.4 | 92.0 | 20 | 4 | US-09-082-649B-68 | Sequence 68, Appl |
| 19 | 18.4 | 92.0 | 20 | 4 | US-09-082-649B-79 | Sequence 79, Appl |
| 20 | 18.4 | 92.0 | 20 | 4 | US-09-325-193A-19 | Sequence 19, Appl |
| 21 | 18.4 | 92.0 | 20 | 4 | US-09-191-170-24 | Sequence 24, Appl |
| 22 | 18.4 | 92.0 | 20 | 4 | US-09-171-425-5 | Sequence 5, Appli |
| 23 | 18.4 | 92.0 | 20 | 4 | US-09-171-425-14 | Sequence 14, Appl |
| 24 | 18.4 | 92.0 | 29 | 4 | US-08-848-229-2 | Sequence 2, Appli |
| 25 | 16.8 | 84.0 | 20 | 4 | US-08-738-652-9 | Sequence 9, Appli |
| 26 | 16.8 | 84.0 | 20 | 4 | US-08-738-652-40 | Sequence 40, Appl |
| 27 | 16.8 | 84.0 | 20 | 4 | US-08-738-652-43 | Sequence 43, Appl |
| 28 | 16.8 | 84.0 | 20 | 4 | US-08-738-652-46 | Sequence 46, Appl |
| 29 | 16.8 | 84.0 | 20 | 4 | US-08-738-652-47 | Sequence 47, Appl |
| 30 | 16.8 | 84.0 | 20 | 4 | US-08-738-652-53 | Sequence 53, Appl |
| 31 | 16.8 | 84.0 | 20 | 4 | US-09-030-701-5 | Sequence 5, Appli |
| 32 | 16.8 | 84.0 | 20 | 4 | US-09-286-098-45 | Sequence 45, Appl |
| 33 | 16.8 | 84.0 | 20 | 4 | US-09-286-098-48 | Sequence 48, Appl |
| 34 | 16.8 | 84.0 | 20 | 4 | US-09-286-098-50 | Sequence 50, Appl |
| 35 | 16.8 | 84.0 | 20 | 4 | US-09-286-098-51 | Sequence 51, Appl |
| 36 | 16.8 | 84.0 | 20 | 4 | US-09-286-098-56 | Sequence 56, Appl |
| 37 | 16.8 | 84.0 | 20 | 4 | US-09-286-098-57 | Sequence 57, Appl |
| 38 | 16.8 | 84.0 | 20 | 4 | US-08-960-774-9 | Sequence 9, Appli |
| 39 | 16.8 | 84.0 | 20 | 4 | US-08-960-774-35 | Sequence 35, Appl |
| 40 | 16.8 | 84.0 | 20 | 4 | US-08-960-774-38 | Sequence 38, Appl |
| 41 | 16.8 | 84.0 | 20 | 4 | US-08-960-774-39 | Sequence 39, Appl |
| 42 | 16.8 | 84.0 | 20 | 4 | US-08-960-774-40 | Sequence 40, Appl |
| 43 | 16.8 | 84.0 | 20 | 4 | US-08-960-774-87 | Sequence 87, Appl |
| 44 | 16.8 | 84.0 | 20 | 4 | US-08-960-774-89 | Sequence 89, Appl |
| 45 | 16.8 | 84.0 | 20 | 4 | US-09-082-649B-71 | Sequence 71, Appl |

ALIGNMENTS

RESULT 1
US-08-738-652-3
; Sequence 3, Application US/08738652B
; Patent No. 6207646
; GENERAL INFORMATION:
; APPLICANT: Krieg, Arthur M.
; TITLE OF INVENTION: Immunostimulatory Nucleic Acid Molecules
; FILE REFERENCE: C1039/7004 HCL
; CURRENT APPLICATION NUMBER: US/08/738,652B
; CURRENT FILING DATE: 1996-10-30
; EARLIER APPLICATION NUMBER: US 08/276,358
; EARLIER FILING DATE: 1994-07-15
; EARLIER APPLICATION NUMBER: US 08/386,063
; EARLIER FILING DATE: 1995-02-07
; NUMBER OF SEQ ID NOS: 55
; SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 3
; LENGTH: 20
; TYPE: DNA
; ORGANISM: Artificial Sequence
; FEATURE:
; OTHER INFORMATION: Synthetic oligonucleotide
US-08-738-652-3

Query Match 100.0%; Score 20; DB 4; Length 20;
Best Local Similarity 100.0%; Pred. No. 0.069;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 TCCATAACGTTCCTGATGCT 20
||||||||||||||||||||
Db 1 TCCATAACGTTCCTGATGCT 20

RESULT 2
US-08-738-652-45
; Sequence 45, Application US/08738652B
; Patent No. 6207646
; GENERAL INFORMATION:
; APPLICANT: Krieg, Arthur M.
; TITLE OF INVENTION: Immunostimulatory Nucleic Acid Molecules
; FILE REFERENCE: C1039/7004 HCL
; CURRENT APPLICATION NUMBER: US/08/738,652B
; CURRENT FILING DATE: 1996-10-30
; EARLIER APPLICATION NUMBER: US 08/276,358
; EARLIER FILING DATE: 1994-07-15
; EARLIER APPLICATION NUMBER: US 08/386,063
; EARLIER FILING DATE: 1995-02-07
; NUMBER OF SEQ ID NOS: 55
; SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 45

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;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic oligonucleotide
US-08-738-652-45

  Query Match             100.0%;  Score 20;  DB 4;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 0.069;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATAACGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATAACGTTCCTGATGCT 20


RESULT 3
US-09-286-098-49
; Sequence 49, Application US/09286098
; Patent No. 6218371
; GENERAL INFORMATION:
;  APPLICANT: Krieg, Arthur M.
;  APPLICANT: Weiner, George
;  TITLE OF INVENTION: Methods and Products for Stimulating the
;  TITLE OF INVENTION: Immune System Using Immunotherapeutic Oligonucleotides and
;  TITLE OF INVENTION: Cytokines
;  FILE REFERENCE: C1039/7026/HCL
;  CURRENT APPLICATION NUMBER: US/09/286,098
;  CURRENT FILING DATE: 1999-04-02
;  EARLIER APPLICATION NUMBER: US 60/080,729
;  EARLIER FILING DATE: 1998-04-03
;  NUMBER OF SEQ ID NOS: 105
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 49
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic Sequence
US-09-286-098-49

  Query Match             100.0%;  Score 20;  DB 4;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 0.069;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATAACGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATAACGTTCCTGATGCT 20


RESULT 4
US-08-960-774-3
; Sequence 3, Application US/08960774
; Patent No. 6239116
;  GENERAL INFORMATION:
;    APPLICANT:  Krieg et al.,
;    TITLE OF INVENTION:  IMMUNOSTIMULATORY NUCLEIC ACID MOLECULES
;    NUMBER OF SEQUENCES:  111
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Fish & Richardson P.C.
;      STREET:  4225 Executive Square, Suite 1400
;      CITY:  La Jolla
;      STATE:  CA
;      COUNTRY:  USA
;      ZIP:  92037
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  ASCII text
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/960,774
;      FILING DATE:  30-October-1997
;      CLASSIFICATION:  514
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  U.S. Serial No. 6239116  08/738,652
;      FILING DATE:  October 30, 1996
;      CLASSIFICATION:  514
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Haile, Lisa A.
;      REGISTRATION NUMBER:  38,347
;      REFERENCE/DOCKET NUMBER:  08918/012001
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  619/678-5070
;      TELEFAX:  619/678-5099
;  INFORMATION FOR SEQ ID NO:  3:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  20 base pairs
;      TYPE:  nucleic acid
;      STRANDEDNESS:  single
;      TOPOLOGY:  linear
;    MOLECULE TYPE:  cDNA
US-08-960-774-3

  Query Match             100.0%;  Score 20;  DB 4;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 0.069;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATAACGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATAACGTTCCTGATGCT 20


RESULT 5
US-09-325-193A-43
; Sequence 43, Application US/09325193A
; Patent No. 6406705
; GENERAL INFORMATION:
;  APPLICANT:  Davis, Heather L.
;  APPLICANT:  Schorr, Joachim
;  APPLICANT:  Krieg, Arthur M.
;  TITLE OF INVENTION:  Use of Nucleic Acids Containing
;  TITLE OF INVENTION:  Unmethylated CpG Dinucleotide as an Adjuvant
;  FILE REFERENCE:  C1039/7025/HCL
;  CURRENT APPLICATION NUMBER: US/09/325,193A
;  CURRENT FILING DATE:  1999-06-03
;  PRIOR APPLICATION NUMBER:  US 09/154,614
;  PRIOR FILING DATE:  1998-09-16
;  PRIOR APPLICATION NUMBER:  PCT/US98/04703
;  PRIOR FILING DATE:  1998-03-10
;  PRIOR APPLICATION NUMBER:  US 60/040,376
;  PRIOR FILING DATE:  1997-03-10
;  NUMBER OF SEQ ID NOS:  98
;  SOFTWARE:  FastSEQ for Windows Version 3.0
; SEQ ID NO 43
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic Oligonucleotide
US-09-325-193A-43

  Query Match             100.0%;  Score 20;  DB 4;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 0.069;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATAACGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATAACGTTCCTGATGCT 20


RESULT 6
US-09-191-170-44
; Sequence 44, Application US/09191170
; Patent No. 6429199
; GENERAL INFORMATION:
```

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;  APPLICANT: Krieg, Arthur M.
;  APPLICANT: Hartmann, Gunther
;  TITLE OF INVENTION: Immunostimulatory Nucleic Acid Molecules
;  TITLE OF INVENTION: for Activating Dendritic Cells
;  FILE REFERENCE: C1039/7017
;  CURRENT APPLICATION NUMBER: US/09/191,170
;  CURRENT FILING DATE: 1998-11-13
;  EARLIER APPLICATION NUMBER: US 08/960,774
;  EARLIER FILING DATE: 1997-10-30
;  EARLIER APPLICATION NUMBER: US 08/738,652
;  EARLIER FILING DATE: 1996-10-30
;  EARLIER APPLICATION NUMBER: US 08/386,063
;  EARLIER FILING DATE: 1995-02-07
;  EARLIER APPLICATION NUMBER: US 08/276,358
;  EARLIER FILING DATE: 1994-07-15
;  NUMBER OF SEQ ID NOS: 99
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 44
;    LENGTH: 20
;    TYPE: DNA
;    ORGANISM: Artificial Sequence
;    FEATURE:
;    OTHER INFORMATION: synthetic oligonucleotide
US-09-191-170-44

  Query Match             100.0%;  Score 20;  DB 4;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 0.069;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       1 TCCATAACGTTCCTGATGCT 20
           ||||||||||||||||||||
Db       1 TCCATAACGTTCCTGATGCT 20


RESULT 7
US-09-133-774-11
; Sequence 11, Application US/09133774B
; Patent No. 5962636
; GENERAL INFORMATION:
;  APPLICANT: Bachmaier, Kurt
;  APPLICANT: Hessel, Andrew J.
;  APPLICANT: Neu M.D., Nikolaus
;  APPLICANT: Penninger, Josef M.
;  TITLE OF INVENTION: No. 5962636el Peptides Capable of Modulating Inflammatory Heart
;  TITLE OF INVENTION: Disease
;  FILE REFERENCE: A-536
;  CURRENT APPLICATION NUMBER: US/09/133,774B
;  CURRENT FILING DATE: 1998-08-12
;  NUMBER OF SEQ ID NOS: 26
;  SOFTWARE: PatentIn Ver. 2.0
; SEQ ID NO 11
;    LENGTH: 20
;    TYPE: DNA
;    ORGANISM: Chlamydia trachomatis
;    FEATURE:
;    OTHER INFORMATION: An oligonucleotide derived from the DNA encoding a
;    OTHER INFORMATION: 60 kDa cysteine rich outer membrane protein from
;    OTHER INFORMATION: Chlamydia trachomatis.
US-09-133-774-11

  Query Match             92.0%;  Score 18.4;  DB 2;  Length 20;
  Best Local Similarity   95.0%;  Pred. No. 0.48;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy       1 TCCATAACGTTCCTGATGCT 20
           ||||| |||||||||||||||
Db       1 TCCATGACGTTCCTGATGCT 20


RESULT 8
US-08-386-063-25
; Sequence 25, Application US/08386063
; Patent No. 6008200
;  GENERAL INFORMATION:
;    APPLICANT:  Arthur M. Krieg, M.D.
;    TITLE OF INVENTION:  IMMUNOMODULATORY OLIGONUCLEOTIDES
;    NUMBER OF SEQUENCES:  27
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  LAHIVE & COCKFIELD
;      STREET:  60 STATE STREET, SUITE 510
;      CITY:  BOSTON
;      STATE:  MASSACHUSETTS
;      COUNTRY:  USA
;      ZIP:  02109-1875
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  ASCII text
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/386,063
;      FILING DATE:
;      CLASSIFICATION:  424
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  ARNOLD, BETH E.
;      REGISTRATION NUMBER:  35,430
;      REFERENCE/DOCKET NUMBER:  UIZ-013CP
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  (617)227-7400
;      TELEFAX:  (617)227-5941
;  INFORMATION FOR SEQ ID NO:  25:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  20 base pairs
;      TYPE:  nucleic acid
;      STRANDEDNESS:  single
;      TOPOLOGY:  linear
;    MOLECULE TYPE:  DNA
US-08-386-063-25

  Query Match             92.0%;  Score 18.4;  DB 3;  Length 20;
  Best Local Similarity   95.0%;  Pred. No. 0.48;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy       1 TCCATAACGTTCCTGATGCT 20
           ||||| |||||||||||||||
Db       1 TCCATGACGTTCCTGATGCT 20


RESULT 9
US-09-303-862-11
; Sequence 11, Application US/09303862
; Patent No. 6034230
; GENERAL INFORMATION:
;  APPLICANT: Bachmaier, Kurt
;  APPLICANT: Hessel, Andrew J.
;  APPLICANT: Neu M.D., Nikolaus
;  APPLICANT: Penninger, Josef M.
;  TITLE OF INVENTION: No. 6034230el Peptides Capable of Modulating Inflammatory Hear
;  TITLE OF INVENTION: Disease
;  FILE REFERENCE: A-536
;  CURRENT APPLICATION NUMBER: US/09/303,862
;  CURRENT FILING DATE: 1999-05-03
;  EARLIER APPLICATION NUMBER: 09/133,774
;  EARLIER FILING DATE: 1998-08-12
;  NUMBER OF SEQ ID NOS: 26
;  SOFTWARE: PatentIn Ver. 2.0
; SEQ ID NO 11
;    LENGTH: 20
;    TYPE: DNA
;    ORGANISM: Chlamydia trachomatis
;    FEATURE:
;    OTHER INFORMATION: An oligonucleotide derived from the DNA encoding a
;    OTHER INFORMATION: 60 kDa cysteine rich outer membrane protein from
;    OTHER INFORMATION: Chlamydia trachomatis.
US-09-303-862-11
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  Query Match            92.0%;  Score 18.4;  DB 3;  Length 20;
  Best Local Similarity  95.0%;  Pred. No. 0.48;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy      1 TCCATAACGTTCCTGATGCT 20
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Db      1 TCCATGACGTTCCTGATGCT 20


RESULT 10
US-08-386-063-25
; Sequence 25, Application US/08386063
; Patent No. 6194388
;  GENERAL INFORMATION:
;    APPLICANT:  Arthur M. Krieg, M.D.
;    TITLE OF INVENTION:  IMMUNOMODULATORY OLIGONUCLEOTIDES
;    NUMBER OF SEQUENCES:  27
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  LAHIVE & COCKFIELD
;      STREET:  60 STATE STREET, SUITE 510
;      CITY:  BOSTON
;      STATE:  MASSACHUSETTS
;      COUNTRY:  USA
;      ZIP:  02109-1875
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  ASCII text
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/386,063
;      FILING DATE:
;      CLASSIFICATION:
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  ARNOLD, BETH E.
;      REGISTRATION NUMBER:  35,430
;      REFERENCE/DOCKET NUMBER:  UIZ-013CP
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  (617)227-7400
;      TELEFAX:  (617)227-5941
;  INFORMATION FOR SEQ ID NO:  25:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  20 base pairs
;      TYPE:  nucleic acid
;      STRANDEDNESS:  single
;      TOPOLOGY:  linear
;    MOLECULE TYPE:  DNA
US-08-386-063-25

  Query Match            92.0%;  Score 18.4;  DB 4;  Length 20;
  Best Local Similarity  95.0%;  Pred. No. 0.48;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy      1 TCCATAACGTTCCTGATGCT 20
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Db      1 TCCATGACGTTCCTGATGCT 20


RESULT 11
US-08-738-652-7
; Sequence 7, Application US/08738652B
; Patent No. 6207646
; GENERAL INFORMATION:
;  APPLICANT: Krieg, Arthur M.
;  TITLE OF INVENTION: Immunostimulatory Nucleic Acid Molecules
;  FILE REFERENCE: C1039/7004 HCL
;  CURRENT APPLICATION NUMBER: US/08/738,652B
;  CURRENT FILING DATE: 1996-10-30
;  EARLIER APPLICATION NUMBER: US 08/276,358
;  EARLIER FILING DATE: 1994-07-15
;  EARLIER APPLICATION NUMBER: US 08/386,063
;  EARLIER FILING DATE: 1995-02-07
;  NUMBER OF SEQ ID NOS: 55
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 7
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic oligonucleotide
US-08-738-652-7

  Query Match            92.0%;  Score 18.4;  DB 4;  Length 20;
  Best Local Similarity  95.0%;  Pred. No. 0.48;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy      1 TCCATAACGTTCCTGATGCT 20
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Db      1 TCCATGACGTTCCTGATGCT 20


RESULT 12
US-08-738-652-35
; Sequence 35, Application US/08738652B
; Patent No. 6207646
; GENERAL INFORMATION:
;  APPLICANT: Krieg, Arthur M.
;  TITLE OF INVENTION: Immunostimulatory Nucleic Acid Molecules
;  FILE REFERENCE: C1039/7004 HCL
;  CURRENT APPLICATION NUMBER: US/08/738,652B
;  CURRENT FILING DATE: 1996-10-30
;  EARLIER APPLICATION NUMBER: US 08/276,358
;  EARLIER FILING DATE: 1994-07-15
;  EARLIER APPLICATION NUMBER: US 08/386,063
;  EARLIER FILING DATE: 1995-02-07
;  NUMBER OF SEQ ID NOS: 55
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 35
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic oligonucleotide
US-08-738-652-35

  Query Match            92.0%;  Score 18.4;  DB 4;  Length 20;
  Best Local Similarity  95.0%;  Pred. No. 0.48;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy      1 TCCATAACGTTCCTGATGCT 20
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Db      1 TCCATGACGTTCCTGATGCT 20


RESULT 13
US-08-738-652-44
; Sequence 44, Application US/08738652B
; Patent No. 6207646
; GENERAL INFORMATION:
;  APPLICANT: Krieg, Arthur M.
;  TITLE OF INVENTION: Immunostimulatory Nucleic Acid Molecules
;  FILE REFERENCE: C1039/7004 HCL
;  CURRENT APPLICATION NUMBER: US/08/738,652B
;  CURRENT FILING DATE: 1996-10-30
;  EARLIER APPLICATION NUMBER: US 08/276,358
;  EARLIER FILING DATE: 1994-07-15
;  EARLIER APPLICATION NUMBER: US 08/386,063
;  EARLIER FILING DATE: 1995-02-07
;  NUMBER OF SEQ ID NOS: 55
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 44
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic oligonucleotide
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US-08-738-652-44

Query Match 92.0%; Score 18.4; DB 4; Length 20;
Best Local Similarity 95.0%; Pred. No. 0.48;
Matches 19; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

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Qy      1 TCCATAACGTTCCTGATGCT 20
          ||||| ||||||||||||||
Db      1 TCCATGACGTTCCTGATGCT 20
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RESULT 14
US-08-738-652-54
; Sequence 54, Application US/08738652B
; Patent No. 6207646
; GENERAL INFORMATION:
; APPLICANT: Krieg, Arthur M.
; TITLE OF INVENTION: Immunostimulatory Nucleic Acid Molecules
; FILE REFERENCE: C1039/7004 HCL
; CURRENT APPLICATION NUMBER: US/08/738,652B
; CURRENT FILING DATE: 1996-10-30
; EARLIER APPLICATION NUMBER: US 08/276,358
; EARLIER FILING DATE: 1994-07-15
; EARLIER APPLICATION NUMBER: US 08/386,063
; EARLIER FILING DATE: 1995-02-07
; NUMBER OF SEQ ID NOS: 55
; SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 54
; LENGTH: 20
; TYPE: DNA
; ORGANISM: Artificial Sequence
; FEATURE:
; OTHER INFORMATION: Synthetic oligonucleotide
US-08-738-652-54

Query Match 92.0%; Score 18.4; DB 4; Length 20;
Best Local Similarity 95.0%; Pred. No. 0.48;
Matches 19; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

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Qy      1 TCCATAACGTTCCTGATGCT 20
          ||||| ||||||||||||||
Db      1 TCCATGACGTTCCTGATGCT 20
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RESULT 15
US-09-286-098-24
; Sequence 24, Application US/09286098
; Patent No. 6218371
; GENERAL INFORMATION:
; APPLICANT: Krieg, Arthur M.
; APPLICANT: Weiner, George
; TITLE OF INVENTION: Methods and Products for Stimulating the
; TITLE OF INVENTION: Immune System Using Immunotherapeutic Oligonucleotides and
; TITLE OF INVENTION: Cytokines
; FILE REFERENCE: C1039/7026/HCL
; CURRENT APPLICATION NUMBER: US/09/286,098
; CURRENT FILING DATE: 1999-04-02
; EARLIER APPLICATION NUMBER: US 60/080,729
; EARLIER FILING DATE: 1998-04-03
; NUMBER OF SEQ ID NOS: 105
; SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 24
; LENGTH: 20
; TYPE: DNA
; ORGANISM: Artificial Sequence
; FEATURE:
; OTHER INFORMATION: Synthetic Sequence
US-09-286-098-24

Query Match 92.0%; Score 18.4; DB 4; Length 20;
Best Local Similarity 95.0%; Pred. No. 0.48;
Matches 19; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

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Qy      1 TCCATAACGTTCCTGATGCT 20
          ||||| ||||||||||||||
Db      1 TCCATGACGTTCCTGATGCT 20
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Job time : 42.5 secs

OM nucleic - nucleic search, using sw model

Run on: March 1, 2003, 21:03:21 ; Search time 44.25 Seconds
(without alignments)
281.862 Million cell updates/sec

Title: US-09-818-918-45
Perfect score: 20
Sequence: 1 tccataacgttcctgatgct 20

Scoring table: IDENTITY_NUC
Gapop 10.0 , Gapext 1.0

Searched: 460893 seqs, 311809382 residues

Total number of hits satisfying chosen parameters: 921786

Minimum DB seq length: 0
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Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

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5: /cgn2_6/ptodata/2/pubpna/US07_NEW_PUB.seq:*
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7: /cgn2_6/ptodata/2/pubpna/US08_NEW_PUB.seq:*
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9: /cgn2_6/ptodata/2/pubpna/US09_NEW_PUB.seq:*
10: /cgn2_6/ptodata/2/pubpna/US09_PUBCOMB.seq:*
11: /cgn2_6/ptodata/2/pubpna/US10_NEW_PUB.seq:*
12: /cgn2_6/ptodata/2/pubpna/US10_PUBCOMB.seq:*
13: /cgn2_6/ptodata/2/pubpna/US60_NEW_PUB.seq:*
14: /cgn2_6/ptodata/2/pubpna/US60_PUBCOMB.seq:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

| Result No. | Score | % Query Match | Length | DB | ID | Description |
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| 1 | 20 | 100.0 | 20 | 9 | US-09-800-266A-43 | Sequence 43, Appl |
| 2 | 20 | 100.0 | 20 | 9 | US-09-895-007A-43 | Sequence 43, Appl |
| 3 | 20 | 100.0 | 20 | 9 | US-10-023-909A-43 | Sequence 43, Appl |
| 4 | 20 | 100.0 | 20 | 9 | US-09-920-313-43 | Sequence 43, Appl |
| 5 | 20 | 100.0 | 20 | 9 | US-09-888-326-545 | Sequence 545, App |
| 6 | 20 | 100.0 | 20 | 10 | US-09-824-468-49 | Sequence 49, Appl |
| 7 | 18.4 | 92.0 | 20 | 9 | US-09-800-266A-19 | Sequence 19, Appl |
| 8 | 18.4 | 92.0 | 20 | 9 | US-09-846-091-4 | Sequence 4, Appli |
| 9 | 18.4 | 92.0 | 20 | 9 | US-09-895-007A-19 | Sequence 19, Appl |
| 10 | 18.4 | 92.0 | 20 | 9 | US-10-023-909A-19 | Sequence 19, Appl |
| 11 | 18.4 | 92.0 | 20 | 9 | US-09-920-313-19 | Sequence 19, Appl |
| 12 | 18.4 | 92.0 | 20 | 9 | US-10-205-150-7 | Sequence 7, Appli |
| 13 | 18.4 | 92.0 | 20 | 9 | US-10-011-635A-1 | Sequence 1, Appli |
| 14 | 18.4 | 92.0 | 20 | 9 | US-09-415-142-25 | Sequence 25, Appl |
| 15 | 18.4 | 92.0 | 20 | 9 | US-09-888-326-127 | Sequence 127, App |
| 16 | 18.4 | 92.0 | 20 | 9 | US-09-888-326-566 | Sequence 566, App |
| 17 | 18.4 | 92.0 | 20 | 9 | US-09-888-326-567 | Sequence 567, App |
| 18 | 18.4 | 92.0 | 20 | 10 | US-09-791-500-7 | Sequence 7, Appli |
| 19 | 18.4 | 92.0 | 20 | 10 | US-09-824-468-24 | Sequence 24, Appl |
| 20 | 18.4 | 92.0 | 29 | 9 | US-09-888-326-129 | Sequence 129, App |
| 21 | 17.4 | 87.0 | 19 | 10 | US-09-965-116A-69 | Sequence 69, Appl |
| 22 | 17.4 | 87.0 | 19 | 10 | US-09-965-116A-70 | Sequence 70, Appl |
| 23 | 17.4 | 87.0 | 19 | 10 | US-09-965-116A-71 | Sequence 71, Appl |
| 24 | 17.4 | 87.0 | 20 | 9 | US-09-888-326-572 | Sequence 572, App |
| 25 | 17.4 | 87.0 | 20 | 9 | US-09-888-326-582 | Sequence 582, App |
| 26 | 16.8 | 84.0 | 20 | 9 | US-09-800-266A-38 | Sequence 38, Appl |
| 27 | 16.8 | 84.0 | 20 | 9 | US-09-800-266A-42 | Sequence 42, Appl |
| 28 | 16.8 | 84.0 | 20 | 9 | US-09-800-266A-44 | Sequence 44, Appl |
| 29 | 16.8 | 84.0 | 20 | 9 | US-09-800-266A-45 | Sequence 45, Appl |
| 30 | 16.8 | 84.0 | 20 | 9 | US-09-800-266A-49 | Sequence 49, Appl |
| 31 | 16.8 | 84.0 | 20 | 9 | US-09-895-007A-38 | Sequence 38, Appl |
| 32 | 16.8 | 84.0 | 20 | 9 | US-09-895-007A-42 | Sequence 42, Appl |
| 33 | 16.8 | 84.0 | 20 | 9 | US-09-895-007A-44 | Sequence 44, Appl |
| 34 | 16.8 | 84.0 | 20 | 9 | US-09-895-007A-45 | Sequence 45, Appl |
| 35 | 16.8 | 84.0 | 20 | 9 | US-09-895-007A-49 | Sequence 49, Appl |
| 36 | 16.8 | 84.0 | 20 | 9 | US-10-023-909A-38 | Sequence 38, Appl |
| 37 | 16.8 | 84.0 | 20 | 9 | US-10-023-909A-42 | Sequence 42, Appl |
| 38 | 16.8 | 84.0 | 20 | 9 | US-10-023-909A-44 | Sequence 44, Appl |
| 39 | 16.8 | 84.0 | 20 | 9 | US-10-023-909A-45 | Sequence 45, Appl |
| 40 | 16.8 | 84.0 | 20 | 9 | US-10-023-909A-49 | Sequence 49, Appl |
| 41 | 16.8 | 84.0 | 20 | 9 | US-10-074-956-2 | Sequence 2, Appli |
| 42 | 16.8 | 84.0 | 20 | 9 | US-09-920-313-38 | Sequence 38, Appl |
| 43 | 16.8 | 84.0 | 20 | 9 | US-09-920-313-42 | Sequence 42, Appl |
| 44 | 16.8 | 84.0 | 20 | 9 | US-09-920-313-44 | Sequence 44, Appl |
| 45 | 16.8 | 84.0 | 20 | 9 | US-09-920-313-45 | Sequence 45, Appl |

ALIGNMENTS

RESULT 1
US-09-800-266A-43
; Sequence 43, Application US/09800266A
; Patent No. US20020156033A1
; GENERAL INFORMATION:
; APPLICANT: Bratzler, Robert L.
; APPLICANT: Petersen, Deanna M.
; TITLE OF INVENTION: Immunostimulatory Nucleic Acids and
; TITLE OF INVENTION: Cancer Medicament Combination Therapy for the Treatment of
; TITLE OF INVENTION: Cancer
; FILE REFERENCE: C1037/7017(HCL/MAT)
; CURRENT APPLICATION NUMBER: US/09/800,266A
; CURRENT FILING DATE: 2001-03-05
; PRIOR APPLICATION NUMBER: US 60/187,214
; PRIOR FILING DATE: 2000-03-03
; NUMBER OF SEQ ID NOS: 146
; SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 43
; LENGTH: 20
; TYPE: DNA
; ORGANISM: Artificial Sequence
; FEATURE:
; OTHER INFORMATION: Synthetic Sequence
US-09-800-266A-43

Query Match 100.0%; Score 20; DB 9; Length 20;
Best Local Similarity 100.0%; Pred. No. 0.17;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 TCCATAACGTTCCTGATGCT 20
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Db 1 TCCATAACGTTCCTGATGCT 20

RESULT 2
US-09-895-007A-43
; Sequence 43, Application US/09895007A
; Patent No. US20020165178A1
; GENERAL INFORMATION:
; APPLICANT: Schetter, Christian
; APPLICANT: Bratzler, Robert L.
; APPLICANT: Petersen, Deanna M.

```
;  TITLE OF INVENTION: IMMUNOSTIMULATORY NUCLEIC ACIDS FOR THE
;  TITLE OF INVENTION:  TREATMENT OF ANEMIA, THROMBOCYTOPENIA, AND NEUTROPENIA
;  FILE REFERENCE: C1041/7014 (AWS)
;  CURRENT APPLICATION NUMBER: US/09/895,007A
;  CURRENT FILING DATE:  2001-06-28
;  PRIOR APPLICATION NUMBER: US 60/214,368
;  PRIOR FILING DATE: 2000-06-28
;  NUMBER OF SEQ ID NOS: 133
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 43
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic oligonucleotide
US-09-895-007A-43

  Query Match             100.0%;  Score 20;  DB 9;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 0.17;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATAACGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATAACGTTCCTGATGCT 20


RESULT 3
US-10-023-909A-43
; Sequence 43, Application US/10023909A
; Patent No. US20020164341A1
; GENERAL INFORMATION:
;  APPLICANT: Davis, Heather L.
;  APPLICANT:  Schorr, Joachim
;  APPLICANT:  Krieg, Arthur M.
;  TITLE OF INVENTION: Use of Nucleic Acids Containing
;  TITLE OF INVENTION:  Unmethylated CpG Dinucleotide as an Adjuvant
;  FILE REFERENCE: C1039/7058/HCL
;  CURRENT APPLICATION NUMBER: US/10/023,909A
;  CURRENT FILING DATE:  2001-12-18
;  PRIOR APPLICATION NUMBER: US 09/325,193
;  PRIOR FILING DATE: 1999-06-03
;  PRIOR APPLICATION NUMBER: US 09/154,614
;  PRIOR FILING DATE: 1998-09-16
;  PRIOR APPLICATION NUMBER: PCT/US98/04703
;  PRIOR FILING DATE: 1998-03-10
;  PRIOR APPLICATION NUMBER: US 60/040,376
;  PRIOR FILING DATE: 1997-03-10
;  NUMBER OF SEQ ID NOS: 98
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 43
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic Oligonucleotide
US-10-023-909A-43

  Query Match             100.0%;  Score 20;  DB 9;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 0.17;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATAACGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATAACGTTCCTGATGCT 20


RESULT 4
US-09-920-313-43
; Sequence 43, Application US/09920313
; Publication No. US20020198165A1
; GENERAL INFORMATION:
;  APPLICANT: Bratzler, Robert L.
;  APPLICANT:  Petersen, Deanna M.
;  TITLE OF INVENTION: Nucleic Acids for the Prevention and
;  TITLE OF INVENTION:  Treatment of Gastric Ulcers
;  FILE REFERENCE: C1037/7019 (HCL/MAT)
;  CURRENT APPLICATION NUMBER: US/09/920,313
;  CURRENT FILING DATE:  2001-08-01
;  PRIOR APPLICATION NUMBER: US 60/222,248
;  PRIOR FILING DATE: 2001-08-08
;  NUMBER OF SEQ ID NOS: 148
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 43
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic Sequence
US-09-920-313-43

  Query Match             100.0%;  Score 20;  DB 9;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 0.17;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATAACGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATAACGTTCCTGATGCT 20


RESULT 5
US-09-888-326-545
; Sequence 545, Application US/09888326
; Publication No. US20030026801A1
; GENERAL INFORMATION:
;  APPLICANT: Weiner, George
;  APPLICANT:  Hartmann, Gunther
;  TITLE OF INVENTION: Methods for Enhancing Antibody-Induced
;  TITLE OF INVENTION:  Cell Lysis and Treating Cancer
;  FILE REFERENCE: C1039/7052 (AWS)
;  CURRENT APPLICATION NUMBER: US/09/888,326
;  CURRENT FILING DATE:  2001-06-22
;  PRIOR APPLICATION NUMBER: US 60/213,346
;  PRIOR FILING DATE: 2000-06-22
;  NUMBER OF SEQ ID NOS: 848
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 545
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic oligonucleotide
;   NAME/KEY: misc_feature
;   LOCATION: (0)...(0)
;   OTHER INFORMATION: phosphodiester backbone
US-09-888-326-545

  Query Match             100.0%;  Score 20;  DB 9;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 0.17;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATAACGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATAACGTTCCTGATGCT 20


RESULT 6
US-09-824-468-49
; Sequence 49, Application US/09824468
; Patent No. US20020064515A1
; GENERAL INFORMATION:
;  APPLICANT: Krieg, Arthur M.
;  APPLICANT:  Weiner, George
;  TITLE OF INVENTION: Methods and Products for Stimulating the
;  TITLE OF INVENTION:  Immune System Using Immunotherapeutic Oligonucleotides and
;  TITLE OF INVENTION:  Cytokines
;  FILE REFERENCE: C1039/7026/HCL
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;  CURRENT APPLICATION NUMBER: US/09/824,468
;  CURRENT FILING DATE:  2001-04-02
;  PRIOR APPLICATION NUMBER: 09/286,098
;  PRIOR FILING DATE: 1999-04-02
;  NUMBER OF SEQ ID NOS: 105
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 49
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic Sequence
US-09-824-468-49

  Query Match             100.0%;  Score 20;  DB 10;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 0.17;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATAACGTTCCTGATGCT 20
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Db      1 TCCATAACGTTCCTGATGCT 20


RESULT 7
US-09-800-266A-19
; Sequence 19, Application US/09800266A
; Patent No. US20020156033A1
; GENERAL INFORMATION:
;  APPLICANT: Bratzler, Robert L.
;  APPLICANT:  Petersen, Deanna M.
;  TITLE OF INVENTION: Immunostimulatory Nucleic Acids and
;  TITLE OF INVENTION:  Cancer Medicament Combination Therapy for the Treatment of
;  TITLE OF INVENTION:  Cancer
;  FILE REFERENCE: C1037/7017(HCL/MAT)
;  CURRENT APPLICATION NUMBER: US/09/800,266A
;  CURRENT FILING DATE:  2001-03-05
;  PRIOR APPLICATION NUMBER: US 60/187,214
;  PRIOR FILING DATE: 2000-03-03
;  NUMBER OF SEQ ID NOS: 146
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 19
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic Sequence
US-09-800-266A-19

  Query Match             92.0%;  Score 18.4;  DB 9;  Length 20;
  Best Local Similarity   95.0%;  Pred. No. 1.2;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy      1 TCCATAACGTTCCTGATGCT 20
          |||||.|||||||||||||||
Db      1 TCCATGACGTTCCTGATGCT 20


RESULT 8
US-09-846-091-4
; Sequence 4, Application US/09846091
; Patent No. US20020165176A1
; GENERAL INFORMATION:
;  APPLICANT: HAYNES, Joel R.
;  APPLICANT:  MACKLIN, Michael D.
;  APPLICANT:  PAYNE, Lendon G.
;  TITLE OF INVENTION: NUCLEIC ACID IMMUNIZATION
;  FILE REFERENCE: APF40
;  CURRENT APPLICATION NUMBER: US/09/846,091
;  CURRENT FILING DATE:  2001-04-30
;  PRIOR APPLICATION NUMBER: US/09/561,951
;  PRIOR FILING DATE: 2000-05-01
;  NUMBER OF SEQ ID NOS: 11
;  SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 4
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Description of Artificial Sequence: Synthetic
;   OTHER INFORMATION: Construct
US-09-846-091-4

  Query Match             92.0%;  Score 18.4;  DB 9;  Length 20;
  Best Local Similarity   95.0%;  Pred. No. 1.2;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy      1 TCCATAACGTTCCTGATGCT 20
          |||||.|||||||||||||||
Db      1 TCCATGACGTTCCTGATGCT 20


RESULT 9
US-09-895-007A-19
; Sequence 19, Application US/09895007A
; Patent No. US20020165178A1
; GENERAL INFORMATION:
;  APPLICANT: Schetter, Christian
;  APPLICANT:  Bratzler, Robert L.
;  APPLICANT:  Petersen, Deanna M.
;  TITLE OF INVENTION: IMMUNOSTIMULATORY NUCLEIC ACIDS FOR THE
;  TITLE OF INVENTION:  TREATMENT OF ANEMIA, THROMBOCYTOPENIA, AND NEUTROPENIA
;  FILE REFERENCE: C1041/7014 (AWS)
;  CURRENT APPLICATION NUMBER: US/09/895,007A
;  CURRENT FILING DATE:  2001-06-28
;  PRIOR APPLICATION NUMBER: US 60/214,368
;  PRIOR FILING DATE: 2000-06-28
;  NUMBER OF SEQ ID NOS: 133
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 19
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic oligonucleotide
US-09-895-007A-19

  Query Match             92.0%;  Score 18.4;  DB 9;  Length 20;
  Best Local Similarity   95.0%;  Pred. No. 1.2;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy      1 TCCATAACGTTCCTGATGCT 20
          |||||.|||||||||||||||
Db      1 TCCATGACGTTCCTGATGCT 20


RESULT 10
US-10-023-909A-19
; Sequence 19, Application US/10023909A
; Patent No. US20020164341A1
; GENERAL INFORMATION:
;  APPLICANT: Davis, Heather L.
;  APPLICANT:  Schorr, Joachim
;  APPLICANT:  Krieg, Arthur M.
;  TITLE OF INVENTION: Use of Nucleic Acids Containing
;  TITLE OF INVENTION:  Unmethylated CpG Dinucleotide as an Adjuvant
;  FILE REFERENCE: C1039/7058/HCL
;  CURRENT APPLICATION NUMBER: US/10/023,909A
;  CURRENT FILING DATE:  2001-12-18
;  PRIOR APPLICATION NUMBER: US 09/325,193
;  PRIOR FILING DATE: 1999-06-03
;  PRIOR APPLICATION NUMBER: US 09/154,614
;  PRIOR FILING DATE: 1998-09-16
;  PRIOR APPLICATION NUMBER: PCT/US98/04703
;  PRIOR FILING DATE: 1998-03-10
;  PRIOR APPLICATION NUMBER: US 60/040,376
;  PRIOR FILING DATE: 1997-03-10
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;  NUMBER OF SEQ ID NOS: 98
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 19
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic Oligonucleotide
US-10-023-909A-19

  Query Match             92.0%;  Score 18.4;  DB 9;  Length 20;
  Best Local Similarity   95.0%;  Pred. No. 1.2;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy      1 TCCATAACGTTCCTGATGCT 20
          ||||| ||||||||||||||
Db      1 TCCATGACGTTCCTGATGCT 20


RESULT 11
US-09-920-313-19
; Sequence 19, Application US/09920313
; Publication No. US20020198165A1
; GENERAL INFORMATION:
;  APPLICANT: Bratzler, Robert L.
;  APPLICANT:  Petersen, Deanna M.
;  TITLE OF INVENTION: Nucleic Acids for the Prevention and
;  TITLE OF INVENTION:  Treatment of Gastric Ulcers
;  FILE REFERENCE: C1037/7019 (HCL/MAT)
;  CURRENT APPLICATION NUMBER: US/09/920,313
;  CURRENT FILING DATE:  2001-08-01
;  PRIOR APPLICATION NUMBER: US 60/222,248
;  PRIOR FILING DATE: 2001-08-08
;  NUMBER OF SEQ ID NOS: 148
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 19
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic Sequence
US-09-920-313-19

  Query Match             92.0%;  Score 18.4;  DB 9;  Length 20;
  Best Local Similarity   95.0%;  Pred. No. 1.2;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy      1 TCCATAACGTTCCTGATGCT 20
          ||||| ||||||||||||||
Db      1 TCCATGACGTTCCTGATGCT 20


RESULT 12
US-10-205-150-7
; Sequence 7, Application US/10205150
; Publication No. US20020197269A1
; GENERAL INFORMATION:
;  APPLICANT: LINGNAU, KAREN ET AL.
;  TITLE OF INVENTION: PHARMACEUTICAL COMPOSITION FOR IMMUNOMODULATION AND PREPARATION
;  TITLE OF INVENTION:  OF VACCINES COMPRISING AN ANTIGEN AND AN IMMUNOGENIC OLIGODEOXYN
;  TITLE OF INVENTION:  AND A POLYCATIONIC POLYMER AS ADJUVANTS
;  FILE REFERENCE: SONN:018US
;  CURRENT APPLICATION NUMBER: US/10/205,150
;  CURRENT FILING DATE:  2002-07-25
;  PRIOR APPLICATION NUMBER: PCT/EP01/00087
;  PRIOR FILING DATE: 2001-01-05
;  NUMBER OF SEQ ID NOS: 9
;  SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 7
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Description of Artificial Sequence:  Synthetic
;   OTHER INFORMATION: Primer
US-10-205-150-7

  Query Match             92.0%;  Score 18.4;  DB 9;  Length 20;
  Best Local Similarity   95.0%;  Pred. No. 1.2;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy      1 TCCATAACGTTCCTGATGCT 20
          ||||| ||||||||||||||
Db      1 TCCATGACGTTCCTGATGCT 20


RESULT 13
US-10-011-635A-1
; Sequence 1, Application US/10011635A
; Publication No. US20030003579A1
; GENERAL INFORMATION:
;  APPLICANT: Kadowaki, No. US20030003579A1imitsu
;  APPLICANT:  Liu, Yong-Jun
;  TITLE OF INVENTION: Dendritic cells; Methods
;  FILE REFERENCE: DX01206
;  CURRENT APPLICATION NUMBER: US/10/011,635A
;  CURRENT FILING DATE:  2001-10-22
;  PRIOR APPLICATION NUMBER: 60/243,232
;  PRIOR FILING DATE: 2000-10-24
;  NUMBER OF SEQ ID NOS: 6
;  SOFTWARE: PatentIn version 3.1
; SEQ ID NO 1
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Sparwasser, et al. (1998) Eur. J. Immunol. 28:2045-2054.
;   FEATURE:
;   NAME/KEY: misc_feature
;   LOCATION: (1)..(20)
;   OTHER INFORMATION: From Sparwasser, et al. (1998).
;   FEATURE:
;   NAME/KEY: misc_feature
;   LOCATION: (1)..(20)
;   OTHER INFORMATION: Sparwasser, et al. (1998) Eur. J. Immunol. 28:2045-2054.
US-10-011-635A-1

  Query Match             92.0%;  Score 18.4;  DB 9;  Length 20;
  Best Local Similarity   95.0%;  Pred. No. 1.2;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy      1 TCCATAACGTTCCTGATGCT 20
          ||||| ||||||||||||||
Db      1 TCCATGACGTTCCTGATGCT 20


RESULT 14
US-09-415-142-25
; Sequence 25, Application US/09415142
; Publication No. US20030026782A1
; GENERAL INFORMATION:
;  APPLICANT: Krieg, Arthur M.
;  APPLICANT:  Klinman, Dennis
;  APPLICANT:  Steinberg, Alfred D.
;  TITLE OF INVENTION: IMMUNOMODULATORY OLIGONUCLEOTIDES
;  FILE REFERENCE: C1039/7029
;  CURRENT APPLICATION NUMBER: US/09/415,142
;  CURRENT FILING DATE:  1999-10-09
;  PRIOR APPLICATION NUMBER: US 08/386,063
;  PRIOR FILING DATE: 1995-02-07
;  NUMBER OF SEQ ID NOS: 27
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 25
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
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;   FEATURE:
;   OTHER INFORMATION: Synthetic oligonucleotide
US-09-415-142-25

  Query Match             92.0%;  Score 18.4;  DB 9;  Length 20;
  Best Local Similarity   95.0%;  Pred. No. 1.2;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy       1 TCCATAACGTTCCTGATGCT 20
           ||||| ||||||||||||||
Db       1 TCCATGACGTTCCTGATGCT 20


RESULT 15
US-09-888-326-127
; Sequence 127, Application US/09888326
; Publication No. US20030026801A1
; GENERAL INFORMATION:
;  APPLICANT: Weiner, George
;  APPLICANT:  Hartmann, Gunther
;  TITLE OF INVENTION: Methods for Enhancing Antibody-Induced
;  TITLE OF INVENTION:  Cell Lysis and Treating Cancer
;  FILE REFERENCE: C1039/7052 (AWS)
;  CURRENT APPLICATION NUMBER: US/09/888,326
;  CURRENT FILING DATE:  2001-06-22
;  PRIOR APPLICATION NUMBER: US 60/213,346
;  PRIOR FILING DATE: 2000-06-22
;  NUMBER OF SEQ ID NOS: 848
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 127
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic oligonucleotide
;   NAME/KEY: misc_feature
;   LOCATION: (0)...(0)
;   OTHER INFORMATION: phosphodiester backbone
;   NAME/KEY: misc_feature
;   LOCATION: (1)...(1)
;   OTHER INFORMATION: biotinylated at 5' end
US-09-888-326-127

  Query Match             92.0%;  Score 18.4;  DB 9;  Length 20;
  Best Local Similarity   95.0%;  Pred. No. 1.2;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy       1 TCCATAACGTTCCTGATGCT 20
           ||||| ||||||||||||||
Db       1 TCCATGACGTTCCTGATGCT 20


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GenCore version 5.1.4_p5_4578


OM nucleic - nucleic search, using sw model

Run on: March 1, 2003, 21:11:41 ; Search time 143.75 Seconds
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Title: US-09-818-918-45
Perfect score: 20
Sequence: 1 tccataacgttcctgatgct 20

Scoring table: IDENTITY_NUC
Gapop 10.0 , Gapext 1.0

Searched: 2185239 seqs, 1125999159 residues

Total number of hits satisfying chosen parameters: 2390332

Minimum DB seq length: 0
Maximum DB seq length: 100

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

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Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

| Result No. | Score | % Query Match | Length | DB | ID | Description |
|---|---|---|---|---|---|---|
| 1 | 20 | 100.0 | 20 | 19 | AAV27709 | Immunostimulatory |
| 2 | 20 | 100.0 | 20 | 19 | AAV27670 | Immunostimulatory |
| 3 | 20 | 100.0 | 20 | 19 | AAV27652 | Immunostimulatory |
| 4 | 20 | 100.0 | 20 | 19 | AAV27642 | Immunostimulatory |
| 5 | 20 | 100.0 | 20 | 20 | AAZ41895 | IL-12 secretion in |
| 6 | 20 | 100.0 | 20 | 20 | AAV80113 | Oligo used in expe |
| 7 | 20 | 100.0 | 20 | 21 | AAZ60967 | Nucleotide sequenc |
| 8 | 20 | 100.0 | 20 | 21 | AAZ47635 | Parasitic infectio |
| 9 | 20 | 100.0 | 20 | 21 | AAZ47842 | Immunostimulatory |
| 10 | 20 | 100.0 | 20 | 21 | AAZ47971 | Immune remodeling |
| 11 | 20 | 100.0 | 20 | 22 | AAH50573 | Mouse IL-6 and B c |
| 12 | 20 | 100.0 | 20 | 22 | AAF98799 | CpG immunostimulat |
| 13 | 20 | 100.0 | 20 | 22 | AAF99577 | Immunostimulatory |
| 14 | 20 | 100.0 | 20 | 22 | AAH19253 | Phosphodiester CpG |
| 15 | 20 | 100.0 | 20 | 22 | AAH19295 | CpG Oligonucleotid |
| 16 | 20 | 100.0 | 20 | 24 | AAL39202 | Murine Toll-like r |
| 17 | 20 | 100.0 | 20 | 24 | ABK46421 | Immunostimulatory |
| 18 | 20 | 100.0 | 20 | 24 | ABL35136 | Immunostimulatory |
| 19 | 20 | 100.0 | 20 | 24 | ABL35200 | Immunostimulatory |
| 20 | 20 | 100.0 | 20 | 24 | ABL35221 | Immunostimulatory |
| 21 | 20 | 100.0 | 20 | 24 | ABL35247 | Immunostimulatory |
| 22 | 20 | 100.0 | 20 | 24 | ABL35266 | Immunostimulatory |
| 23 | 20 | 100.0 | 20 | 24 | ABL35289 | Immunostimulatory |
| 24 | 20 | 100.0 | 20 | 24 | ABL39123 | Immunostimulatory |
| 25 | 20 | 100.0 | 24 | 24 | ABL35310 | Immunostimulatory |
| 26 | 20 | 100.0 | 26 | 24 | ABL35143 | Immunostimulatory |
| 27 | 20 | 100.0 | 28 | 24 | ABL35331 | Immunostimulatory |
| 28 | 19 | 95.0 | 20 | 21 | AAZ55883 | Immunomodulatory o |
| 29 | 18.4 | 92.0 | 20 | 18 | AAT88792 | Synthetic phosphor |
| 30 | 18.4 | 92.0 | 20 | 19 | AAV45995 | Immune adjuvant Cp |
| 31 | 18.4 | 92.0 | 20 | 19 | AAV45996 | Immune adjuvant Cp |
| 32 | 18.4 | 92.0 | 20 | 19 | AAV27708 | Immunostimulatory |
| 33 | 18.4 | 92.0 | 20 | 19 | AAV27700 | Immunostimulatory |
| 34 | 18.4 | 92.0 | 20 | 19 | AAV27646 | Immunostimulatory |
| 35 | 18.4 | 92.0 | 20 | 19 | AAV27651 | Immunostimulatory |
| 36 | 18.4 | 92.0 | 20 | 20 | AAZ41879 | IL-12 secretion in |
| 37 | 18.4 | 92.0 | 20 | 20 | AAZ28190 | Chlamydia trachoma |
| 38 | 18.4 | 92.0 | 20 | 20 | AAV72500 | CpG motif containi |
| 39 | 18.4 | 92.0 | 20 | 20 | AAV80114 | Oligo used in expe |
| 40 | 18.4 | 92.0 | 20 | 21 | AAC60281 | Immunostimulatory |
| 41 | 18.4 | 92.0 | 20 | 21 | AAA71935 | Murine Th1 cells i |
| 42 | 18.4 | 92.0 | 20 | 21 | AAA90453 | CpG adjuvant oligo |
| 43 | 18.4 | 92.0 | 20 | 21 | AAA48598 | Immunostimulatory |
| 44 | 18.4 | 92.0 | 20 | 21 | AAZ99648 | Nucleotide sequenc |
| 45 | 18.4 | 92.0 | 20 | 21 | AAZ99173 | Inflammatory cardi |

ALIGNMENTS

RESULT 1
AAV27709
ID AAV27709 standard; DNA; 20 BP.
XX
AC AAV27709;
XX
DT 01-OCT-1998 (first entry)
XX
DE Immunostimulatory oligodeoxyribonucleotide of the invention.
XX
KW Immunostimulatory; oligodeoxyribonucleotide; ODN;
KW unmethylated CpG dinucleotide; activate; lymphocyte; immune response;
KW Th2; Th1; cytokine; treatment; prevention; asthma; autoimmune disease;
KW desensitisation therapy; artificial adjuvant; antibody generation; ss.
XX
OS Synthetic.
XX
PN WO9818810-A1.
XX
PD 07-MAY-1998.
XX
PF 30-OCT-1997; 97WO-US19791.
XX
PR 30-OCT-1996; 96US-0738652.
XX
PA (IOWA ) UNIV IOWA RES FOUND.
XX
PI Kline JN, Krieg AM;
XX
DR WPI; 1998-272127/24.
XX
PT New immunostimulatory nucleic acid molecules - which contain at

PT least one unmethylated CpG dinucleotide, used for treating e.g.
PT tumours, infections or autoimmune disease
XX
PS Disclosure; Page 28; 109pp; English.
XX
CC AAV27641-751 represent immunostimulatory oligodeoxyribonucleotides
CC (ODNs) of the invention. The ODNs contain at least one unmethylated CpG
CC dinucleotide, and have the formula:
CC 5' N1X1CGX2N2 3', where at least one nucleotide separates consecutive
CC CpGs, X1 is adenine, guanine, or thymine, X2 is cytosine or thymine, N
CC is any nucleotide and N1+N2 is 0-26 bases with the provision that N1 and
CC N2 does not contain a CCGG tetramer or more than one CCG or CGG trimer
CC OR 5' NX1X2CGX3X4N 3', where at least one nucleotide separates
CC consecutive CpGs, X1 and X2 are selected from GpT, GpG, GpA, ApT and ApA,
CC X3and X4 are selected from TpT or CpT, N is any nucleotide and N1+N2 is
CC 0-26 bases with the provision that N1 and N2 does not contain a CCGG
CC tetramer or more than one CCG or CGG trimer.
CC The ODNs activate lymphocytes in a subject and redirect a subject's
CC immune response from a Th2 to a Th1 (e.g. by inducing monocytic cells
CC and other cells to produce Th1 cytokines, including IL-12, IFN-gamma and
CC GM-CSF). The ODNs can be used to treat or prevent an asthmatic disorder,
CC autoimmune diseases, in desensitisation therapy, as an artificial
CC adjuvant during antibody generation in a mammal such as a mouse or a
CC human.
XX
SQ Sequence 20 BP; 4 A; 6 C; 3 G; 7 T; 0 other;

Query Match 100.0%; Score 20; DB 19; Length 20;
Best Local Similarity 100.0%; Pred. No. 0.83;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 TCCATAACGTTCCTGATGCT 20
||||||||||||||||||||
Db 1 TCCATAACGTTCCTGATGCT 20

RESULT 2
AAV27670
ID AAV27670 standard; DNA; 20 BP.
XX
AC AAV27670;
XX
DT 01-OCT-1998 (first entry)
XX
DE Immunostimulatory phosphodiester CpG oligodeoxyribonucleotide.
XX
KW Immunostimulatory; oligodeoxyribonucleotide; ODN;
KW unmethylated CpG dinucleotide; activate; lymphocyte; immune response;
KW Th2; Th1; cytokine; treatment; prevention; asthma; autoimmune disease;
KW desensitisation therapy; artificial adjuvant; antibody generation; ss.
XX
OS Synthetic.
XX
PN WO9818810-A1.
XX
PD 07-MAY-1998.
XX
PF 30-OCT-1997; 97WO-US19791.
XX
PR 30-OCT-1996; 96US-0738652.
XX
PA (IOWA ) UNIV IOWA RES FOUND.
XX
PI Kline JN, Krieg AM;
XX
DR WPI; 1998-272127/24.
XX
PT New immunostimulatory nucleic acid molecules - which contain at
PT least one unmethylated CpG dinucleotide, used for treating e.g.
PT tumours, infections or autoimmune disease
XX
PS Disclosure; Page 11; 109pp; English.
XX
CC AAV27641-751 represent immunostimulatory oligodeoxyribonucleotides
CC (ODNs) of the invention. The ODNs contain at least one unmethylated CpG
CC dinucleotide, and have the formula:
CC 5' N1X1CGX2N2 3', where at least one nucleotide separates consecutive
CC CpGs, X1 is adenine, guanine, or thymine, X2 is cytosine or thymine, N
CC is any nucleotide and N1+N2 is 0-26 bases with the provision that N1 and
CC N2 does not contain a CCGG tetramer or more than one CCG or CGG trimer
CC OR 5' NX1X2CGX3X4N 3', where at least one nucleotide separates
CC consecutive CpGs, X1 and X2 are selected from GpT, GpG, GpA, ApT and ApA,
CC X3and X4 are selected from TpT or CpT, N is any nucleotide and N1+N2 is
CC 0-26 bases with the provision that N1 and N2 does not contain a CCGG
CC tetramer or more than one CCG or CGG trimer.
CC The ODNs activate lymphocytes in a subject and redirect a subject's
CC immune response from a Th2 to a Th1 (e.g. by inducing monocytic cells
CC and other cells to produce Th1 cytokines, including IL-12, IFN-gamma and
CC GM-CSF). The ODNs can be used to treat or prevent an asthmatic disorder,
CC autoimmune diseases, in desensitisation therapy, as an artificial
CC adjuvant during antibody generation in a mammal such as a mouse or a
CC human.
XX
SQ Sequence 20 BP; 4 A; 6 C; 3 G; 7 T; 0 other;

Query Match 100.0%; Score 20; DB 19; Length 20;
Best Local Similarity 100.0%; Pred. No. 0.83;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 TCCATAACGTTCCTGATGCT 20
||||||||||||||||||||
Db 1 TCCATAACGTTCCTGATGCT 20

RESULT 3
AAV27652
ID AAV27652 standard; DNA; 20 BP.
XX
AC AAV27652;
XX
DT 01-OCT-1998 (first entry)
XX
DE Immunostimulatory oligodeoxyribonucleotide of the invention.
XX
KW Immunostimulatory; oligodeoxyribonucleotide; ODN;
KW unmethylated CpG dinucleotide; activate; lymphocyte; immune response;
KW Th2; Th1; cytokine; treatment; prevention; asthma; autoimmune disease;
KW desensitisation therapy; artificial adjuvant; antibody generation; ss.
XX
OS Synthetic.
XX
PN WO9818810-A1.
XX
PD 07-MAY-1998.
XX
PF 30-OCT-1997; 97WO-US19791.
XX
PR 30-OCT-1996; 96US-0738652.
XX
PA (IOWA ) UNIV IOWA RES FOUND.
XX
PI Kline JN, Krieg AM;
XX
DR WPI; 1998-272127/24.
XX
PT New immunostimulatory nucleic acid molecules - which contain at
PT least one unmethylated CpG dinucleotide, used for treating e.g.
PT tumours, infections or autoimmune disease
XX
PS Claim 26; Page 83; 109pp; English.
XX
CC AAV27641-751 represent immunostimulatory oligodeoxyribonucleotides
CC (ODNs) of the invention. The ODNs contain at least one unmethylated CpG
CC dinucleotide, and have the formula:
CC 5' N1X1CGX2N2 3', where at least one nucleotide separates consecutive
CC CpGs, X1 is adenine, guanine, or thymine, X2 is cytosine or thymine, N

CC is any nucleotide and N1+N2 is 0-26 bases with the provision that N1 and
CC N2 does not contain a CCGG tetramer or more than one CCG or CGG trimer
CC OR 5' NX1X2CGX3X4N 3', where at least one nucleotide separates
CC consecutive CpGs, X1 and X2 are selected from GpT, GpG, GpA, ApT and ApA,
CC X3and X4 are selected from TpT or CpT, N is any nucleotide and N1+N2 is
CC 0-26 bases with the provision that N1 and N2 does not contain a CCGG
CC tetramer or more than one CCG or CGG trimer.
CC The ODNs activate lymphocytes in a subject and redirect a subject's
CC immune response from a Th2 to a Th1 (e.g. by inducing monocytic cells
CC and other cells to produce Th1 cytokines, including IL-12, IFN-gamma and
CC GM-CSF). The ODNs can be used to treat or prevent an asthmatic disorder,
CC autoimmune diseases, in desensitisation therapy, as an artificial
CC adjuvant during antibody generation in a mammal such as a mouse or a
CC human.
XX
SQ Sequence 20 BP; 4 A; 6 C; 3 G; 7 T; 0 other;

Query Match 100.0%; Score 20; DB 19; Length 20;
Best Local Similarity 100.0%; Pred. No. 0.83;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 TCCATAACGTTCCTGATGCT 20
||||||||||||||||||||
Db 1 TCCATAACGTTCCTGATGCT 20

RESULT 4
AAV27642
ID AAV27642 standard; DNA; 20 BP.
XX
AC AAV27642;
XX
DT 01-OCT-1998 (first entry)
XX
DE Immunostimulatory oligodeoxyribonucleotide of the invention.
XX
KW Immunostimulatory; oligodeoxyribonucleotide; ODN;
KW unmethylated CpG dinucleotide; activate; lymphocyte; immune response;
KW Th2; Th1; cytokine; treatment; prevention; asthma; autoimmune disease;
KW desensitisation therapy; artificial adjuvant; antibody generation; ss.
XX
OS Synthetic.
XX
PN WO9818810-A1.
XX
PD 07-MAY-1998.
XX
PF 30-OCT-1997; 97WO-US19791.
XX
PR 30-OCT-1996; 96US-0738652.
XX
PA (IOWA ) UNIV IOWA RES FOUND.
XX
PI Kline JN, Krieg AM;
XX
DR WPI; 1998-272127/24.
XX
PT New immunostimulatory nucleic acid molecules - which contain at
PT least one unmethylated CpG dinucleotide, used for treating e.g.
PT tumours, infections or autoimmune disease
XX
PS Claim 23; Page 82; 109pp; English.
XX
CC AAV27641-751 represent immunostimulatory oligodeoxyribonucleotides
CC (ODNs) of the invention. The ODNs contain at least one unmethylated CpG
CC dinucleotide, and have the formula:
CC 5' N1X1CGX2N2 3', where at least one nucleotide separates consecutive
CC CpGs, X1 is adenine, guanine, or thymine, X2 is cytosine or thymine, N
CC is any nucleotide and N1+N2 is 0-26 bases with the provision that N1 and
CC N2 does not contain a CCGG tetramer or more than one CCG or CGG trimer
CC OR 5' NX1X2CGX3X4N 3', where at least one nucleotide separates
CC consecutive CpGs, X1 and X2 are selected from GpT, GpG, GpA, ApT and ApA,
CC X3and X4 are selected from TpT or CpT, N is any nucleotide and N1+N2 is
CC 0-26 bases with the provision that N1 and N2 does not contain a CCGG
CC tetramer or more than one CCG or CGG trimer.
CC The ODNs activate lymphocytes in a subject and redirect a subject's
CC immune response from a Th2 to a Th1 (e.g. by inducing monocytic cells
CC and other cells to produce Th1 cytokines, including IL-12, IFN-gamma and
CC GM-CSF). The ODNs can be used to treat or prevent an asthmatic disorder,
CC autoimmune diseases, in desensitisation therapy, as an artificial
CC adjuvant during antibody generation in a mammal such as a mouse or a
CC human.
XX
SQ Sequence 20 BP; 4 A; 6 C; 3 G; 7 T; 0 other;

Query Match 100.0%; Score 20; DB 19; Length 20;
Best Local Similarity 100.0%; Pred. No. 0.83;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 TCCATAACGTTCCTGATGCT 20
||||||||||||||||||||
Db 1 TCCATAACGTTCCTGATGCT 20

RESULT 5
AAZ41895
ID AAZ41895 standard; DNA; 20 BP.
XX
AC AAZ41895;
XX
DT 24-JAN-2000 (first entry)
XX
DE IL-12 secretion inducing CpG oligonucleotide 40.
XX
KW CpG oligonucleotide; phosphorothioate; interleukin-12; IL-12; secretion;
KW human PBMC; immune response; cancer; HIV; bacterial disease; asthma;
KW neoplastic disorder; jaagsiekte; B cell; NK cell; ss; cytokine;
KW antigen presenting cell; infection; allergic disease.
XX
OS Synthetic.
XX
PN WO9951259-A2.
XX
PD 14-OCT-1999.
XX
PF 02-APR-1999; 99WO-US07335.
XX
PR 03-APR-1998; 98US-0080729.
XX
PA (IOWA ) UNIV IOWA RES FOUND.
XX
PI Krieg AM, Weiner G;
XX
DR WPI; 1999-620169/53.
XX
PT Novel synergistic combinations of immunostimulatory oligonucleotides
PT and immunopotentiating cytokines are useful for stimulating the immune
PT system -
XX
PS Example 8; Page 77; 91pp; English.
XX
CC Sequences AAZ41856-Z41949 are phosphorothioate CpG oligonucleotides
CC which are used in the invention to induce interleukin-12 (IL-12)
CC secretion from human PBMC. The invention comprises stimulating an immune
CC response in a subject comprising administering to a subject exposed to an
CC antigen, an immunopotentiating cytokine and an immunostimulatory CpG
CC oligonucleotide to induce a synergistic antigen specific immune
CC response. The methods are useful for treating cancer by stimulating an
CC antigen specific immune response against a cancer antigen. The methods
CC can also be used to treat neoplastic disorders in humans, including but
CC not limited to: sarcoma, carcinoma, fibroma, Lymphoma, melanoma,
CC neuroblastoma, retinoblastoma, and glioma. The methods are also useful
CC for treating infectious diseases, e.g. viral diseases such as HIV,
CC bacterial diseases, and fungal diseases. The methods may also be used to
CC treat allergic diseases, e.g. asthma. The methods and compositions may
CC also be applied to treat cancer and tumours in non human subjects,

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CC   e.g. cats and dogs. Neoplasias affecting agricultural livestock may also
CC   be treated and include leukaemia, haemangiopericytoma and bovine ocular
CC   neoplasia. Chronic, infectious, contagious diseases of sheep and goats
CC   caused by the bacterium Corynebacterium pseudotuberculosis, and
CC   contagious lung tumour of sheep caused by jaagsiekte may also be
CC   treated. CpG oligonucleotides can be useful in activating B cells, NK
CC   cells, and antigen presenting cells, such as monocytes and macrophages.
CC   CpG oligonucleotides enhance antibody dependent cellular cytotoxicity and
CC   can be used as an adjuvant in conjunction with tumour antigens to
CC   protect against a tumour challenge.
XX
SQ   Sequence 20 BP; 4 A; 6 C; 3 G; 7 T; 0 other;

  Query Match           100.0%;  Score 20;  DB 20;  Length 20;
  Best Local Similarity  100.0%;  Pred. No. 0.83;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATAACGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATAACGTTCCTGATGCT 20


RESULT 6
AAV80113
ID   AAV80113 standard; DNA; 20 BP.
XX
AC   AAV80113;
XX
DT   12-MAR-1999  (first entry)
XX
DE   Oligo used in experiments for stimulation of cytokine production.
XX
KW   Immunomodulatory; immunostimulatory; octanucleotide; immune regulation;
KW   ISS: cancer; allergy; asthma; hepatitis B infection; papillomavirus;
KW   human immunodeficiency virus; influenza; herpes; M. tuberculosis; ss;
KW   B. pertussis; malaria; plasmodia; Leishmania; Trypanosoma; Schistosoma.
XX
OS   Synthetic.
XX
FH   Key             Location/Qualifiers
FT   modified_base    8
FT                    /*tag=  a
FT                    /note= "5-bromocytosine"
XX
PN   WO9855495-A2.
XX
PD   10-DEC-1998.
XX
PF   05-JUN-1998;   98WO-US11578.
XX
PR   06-JUN-1997;   97US-0048793.
XX
PA   (DYNA-) DYNAVAX TECHNOLOGIES CORP.
XX
PI   Dina D,  Roman M,  Schwartz D;
XX
DR   WPI; 1999-059898/05.
XX
PT   Immunostimulatory oligonucleotides regulate the immune system - and
PT   contain an immune-stimulating octanucleotide sequence; for treating
PT   cancer, allergic and infectious diseases
XX
PS   Example 2; Page 30; 63pp; English.
XX
CC   The invention relates to immunomodulatory oligonucleotides that comprise
CC   at least 1 immunostimulatory octanucleotide sequence (ISS) where the ISS
CC   sequences are selected from the group consisting of AACGTTCC, AACGTTCG,
CC   GACGTTCC, and GACGTTCG. The immunomodulatory sequences are used to treat
CC   patients needing immune regulation, such as those suffering from cancer,
CC   an allergic disease and asthma. They are also used to prevent infectious
CC   diseases such as influenza, herpes, hepatitis B, human immunodeficiency
CC   and papillomavirus, Hemophilus influenza, Mycobacterium tuberculosis and
CC   Bordetella pertussis, malarial plasmodia, Leishmania, Trypanosoma and
CC   Schistosoma. The immunomodulatory sequences are used to screen for human
CC   immunostimulatory activity by incubating macrophage cells and the
CC   oligonucleotide; and determining the relative amount of Th1-biased
CC   cytokines in the supernatant. Sequences AAV80104 to AAV80116 represent
CC   oligonucleotides that were tested for immunostimulatory activity. These
CC   were used in experiments for the stimulation of cytokine production and
CC   were found to lack immunostimulatory activity. The invention provides
CC   specific claimed examples (AAV80096-103) of immunomodulatory sequences.
XX
SQ   Sequence 20 BP; 4 A; 6 C; 3 G; 7 T; 0 other;

  Query Match           100.0%;  Score 20;  DB 20;  Length 20;
  Best Local Similarity  100.0%;  Pred. No. 0.83;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATAACGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATAACGTTCCTGATGCT 20


RESULT 7
AAZ60967
ID   AAZ60967 standard; DNA; 20 BP.
XX
AC   AAZ60967;
XX
DT   30-MAY-2000  (first entry)
XX
DE   Nucleotide sequence of an immunostimulatory CpG oligonucleotide.
XX
KW   Immunostimulatory; stereoisomer; CpG oligonucleotide; Th2; Th1; asthma;
KW   allergic reaction; allergen; cancer antigen; cancer; immunoinhibitory;
KW   inflammatory disease; inflammatory bowel disease; autoimmune disease;
KW   gingivitis; psoriasis; sepsis; ss.
XX
OS   Synthetic.
XX
PN   WO200006588-A1.
XX
PD   10-FEB-2000.
XX
PF   27-JUL-1999;   99WO-US17100.
XX
PR   27-JUL-1998;   98US-0094370.
XX
PA   (IOWA ) UNIV IOWA RES FOUND.
PA   (CPGI-) CPG IMMUNOPHARMACEUTICALS INC.
XX
PI   Krieg AM;
XX
DR   WPI; 2000-195254/17.
XX
PT   Immunostimulatory and immunoinhibitory stereoisomers of CpG
PT   oligonucleotides useful for immunotherapy of cancer -
XX
PS   Disclosure; Page 11; 88pp; English.
XX
CC   AAZ60933-Z61015 represent immunostimulatory stereoisomers of CpG
CC   oligonucleotides. The sequences are derived from generic nucleic
CC   acid sequence, from which immunoinhibitory sequences may also be
CC   derived. The immunostimulatory nucleic acids can be co-administered
CC   with an antigen to induce an antigen-specific immune response. The
CC   immunostimulatory nucleic acids can also be used in methods for
CC   redirecting a subject's immune response from a Th2 to a Th1, for
CC   treating asthma, for desensitising a subject against the occurrence
CC   of an allergic reaction in response to contact with an allergen, for
CC   activating an immune cell, especially a lymphocyte or a dendritic cell
CC   expressing a cancer antigen or for treating cancer. The immunoinhibitory
CC   nucleic acid can be used to prevent an immune response, especially where
CC   the immune response in the subject is excessive due to having received
CC   an immune stimulating compound. The immunoinhibitory nucleic acid can
CC   be used to treat a subject having or at risk of an inflammatory disease,
CC   especially inflammatory bowel disease, autoimmune disease, gingivitis,
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CC   psoriasis and sepsis.
XX
SQ   Sequence 20 BP; 4 A; 6 C; 3 G; 7 T; 0 other;

  Query Match           100.0%;  Score 20;  DB 21;  Length 20;
  Best Local Similarity 100.0%;  Pred. No. 0.83;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATAACGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATAACGTTCCTGATGCT 20


RESULT 8
AAZ47635
ID   AAZ47635 standard; DNA; 20 BP.
XX
AC   AAZ47635;
XX
DT   01-MAR-2000  (first entry)
XX
DE   Parasitic infection preventing exemplary oligonucleotide SEQ ID NO:41.
XX
KW   Immune system; immunostimulatory; parasitic infection; parasite;
KW   CpG oligonucleotide; antigen presenting cell; natural killer cell;
KW   granulocyte; malaria; helminth disease; tick; mite; ss.
XX
OS   Synthetic.
XX
PN   WO9956755-A1.
XX
PD   11-NOV-1999.
XX
PF   06-MAY-1999;   99WO-US09863.
XX
PR   06-MAY-1998;   98US-0084512.
XX
PA   (IOWA ) UNIV IOWA RES FOUND.
PA   (OTTA-) OTTAWA CIVIC LOEB RES INST.
PA   (USNA ) US SEC OF NAVY.
XX
PI   Gramzinski RA,  Krieg AM,  Davis HL,  Hoffman SL;
XX
DR   WPI; 2000-062123/05.
XX
PT   Treating and preventing parasitic infections using CpG oligonucleotides
XX
PS   Disclosure; Page 20; 74pp; English.
XX
CC   The present invention describes a method for treating and preventing
CC   parasitic infection by administration of unmethylated CpG
CC   oligonucleotides. The CpG oligonucleotides are able to stimulate the
CC   innate immune system via the activation of immune cells, such as antigen
CC   presenting cells, natural killer cells and granulocytes. The CpG
CC   oligonucleotides and the method can be used to treat and prevent
CC   parasitic diseases, such as malaria, helminth diseases, tick and mites
CC   in humans, animals and poultry. The oligonucleotides may be administered
CC   in conjunction with parasiticides or other therapeutic compounds after
CC   an organism has been diagnosed to be infected with parasites. Diseases
CC   which can be treated or prevented include those caused by Plasmodium
CC   falciparum, P. ovale, P. malariae, P. vivax, P. knowlesi, Babesia
CC   microti, B. divergens, Trypanosoma cruzi, T. gambiense, T. rhodesiense,
CC   Schistosoma mansoni, Toxoplasma gondii, Trichinella spiralis, Leishmania
CC   major, L. donovani, L. braziliensis, and L. tropica. The parasite is
CC   especially capable of causing malaria. The present sequence represents
CC   a parasitic infection preventing exemplary oligonucleotide sequence from
CC   the present invention.
XX
SQ   Sequence 20 BP; 4 A; 6 C; 3 G; 7 T; 0 other;

  Query Match           100.0%;  Score 20;  DB 21;  Length 20;
  Best Local Similarity 100.0%;  Pred. No. 0.83;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATAACGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATAACGTTCCTGATGCT 20


RESULT 9
AAZ47842
ID   AAZ47842 standard; DNA; 20 BP.
XX
AC   AAZ47842;
XX
DT   07-MAR-2000  (first entry)
XX
DE   Immunostimulatory oligonucleotide sequence SEQ ID NO:43.
XX
KW   Mucosal immunity; immunostimulatory; CpG motif; immune response;
KW   antigen; allergic reaction; cancer; infectious disease; asthma; eczema;
KW   allergic rhinitis; coryza; hay fever; conjunctivitis; bronchial asthma;
KW   urticaria; food allergy; atopic condition; mucosal delivery; ss.
XX
OS   Synthetic.
XX
PN   WO9961056-A2.
XX
PD   02-DEC-1999.
XX
PF   21-MAY-1999;   99WO-US11359.
XX
PR   22-MAY-1998;   98US-0086393.
XX
PA   (LOEB-) LOEB HEALTH RES INST AT OTTAWA HOSPITAL.
PA   (CPGI-) CPG IMMUNOPHARMACEUTICALS INC.
XX
PI   McCluskie MJ,  Davis HL;
XX
DR   WPI; 2000-062585/05.
XX
PT   Use of CpG containing oligonucleotides as adjuvants for inducing an
PT   immune response -
XX
PS   Disclosure; Page 24; 116pp; English.
XX
CC   The present invention describes a method using CpG containing
CC   oligonucleotides (ONs) as adjuvants for inducing an immune response.
CC   The method for inducing a mucosal immune response (MIR) comprises:
CC   (1) administering to a mucosal surface of a subject an ON, having a
CC   sequence including at least the formula (I); and (2) exposing the
CC   subject to an antigen to induce the MIR, where the antigen is not
CC   encoded in a nucleic acid vector: 5'X1X2CGX3X43' (I), where
CC   C and G = unmethylated, and X1, X2, X3 and X4 = nucleotides. The method
CC   can be used for treating a subject at risk of developing an allergic
CC   reaction, cancer or infectious disease. It can be used for treating
CC   asthmatic subjects, eczema, allergic rhinitis or coryza, hay fever,
CC   conjunctivitis, bronchial asthma, urticaria, food allergies or other
CC   atopic conditions. The antigen may be derived from infectious organisms
CC   such as infectious bacteria, viruses, parasites or fungi. It can be used
CC   in humans or animals, e.g. bovine, equine, feline, swine, aquatic or
CC   avian species. The ONs act as potent mucosal adjuvants to induce immune
CC   responses at both local and remote sites against an antigen
CC   administered to the mucosal tissue. Both systemic and mucosal immunity
CC   are induced by mucosal delivery of the ONs. AAZ47808 to AAZ47891
CC   represent examples of immunostimulatory oligonucleotides given in the
CC   present invention.
XX
SQ   Sequence 20 BP; 4 A; 6 C; 3 G; 7 T; 0 other;

  Query Match           100.0%;  Score 20;  DB 21;  Length 20;
  Best Local Similarity 100.0%;  Pred. No. 0.83;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATAACGTTCCTGATGCT 20
          ||||||||||||||||||||
```

```
Db      1 TCCATAACGTTCCTGATGCT 20

RESULT 10
AAZ47971
ID   AAZ47971 standard; DNA; 20 BP.
XX
AC   AAZ47971;
XX
DT   08-MAR-2000  (first entry)
XX
DE   Immune remodeling inducing CpG oligonucleotide SEQ ID NO:49.
XX
KW   Haematopoiesis; regulation; CpG oligonucleotide; phosphorothioate;
KW   immune remodeling; thrombopoiesis; anaemia; immune system; cancer;
KW   immune response; allergic reaction; infectious disease; asthma;
KW   thrombocytopaenia; immunohaemolytic disorder; genetic disorder;
KW   haemoglobinopathy; kidney failure; chronic inflammatory disorder;
KW   rheumatoid arthritis; ss.
XX
OS   Synthetic.
XX
PN   WO9958118-A2.
XX
PD   18-NOV-1999.
XX
PF   14-MAY-1999;   99WO-IB01285.
XX
PR   14-MAY-1998;   98US-0085516.
PR   02-FEB-1999;   99US-0241653.
XX
PA   (CPGI-) CPG IMMUNOPHARMACEUTICALS GMBH.
PA   (CPGI-) CPG IMMUNOPHARMACEUTICALS INC.
XX
PI   Wagner H,  Lipford G;
XX
DR   WPI; 2000-062261/05.
XX
PT   Use of CpG containing oligonucleotides for, e.g. inducing an
PT   antigen-specific immune response  -
XX
PS   Example 1; Page 66; 116pp; English.
XX
CC   The present invention describes a method using CpG containing
CC   oligonucleotides (ONs) for regulating immune system remodeling and for
CC   regulating haematopoiesis. The method for inducing an antigen-specific
CC   immune response comprises: (1) administering an ON having a sequence
CC   including at least the formula (I); and (2) exposing the subject to an
CC   antigen at least 3 days after the ON is administered to the subject to
CC   produce an antigen-specific immune response: 5' X1CGX2 3' (I), where
CC   the ON = includes at least 8 nucleotides; C and G = unmethylated, and
CC   X1 and X2 = nucleotides. The method can be used for inducing an immune
CC   response against an antigen such as cells, cell extracts, proteins,
CC   polysaccharides, polysaccharide conjugates, lipids, glycolipids,
CC   carbohydrate, viral extracts, viruses, bacteria, fungi, parasites and
CC   allergens. It can be used in a subject at risk of developing cancer or
CC   an allergic reaction. It can also be used for treating an infectious
CC   disease, allergic diseases and asthma, as well as thrombocytopaenia
CC   which is drug-induced, due to an autoimmune disorder such as idiopathic
CC   thrombocytopenic purpura, or resulting from accidental or therapeutic
CC   radiation exposure. It can also be used for treating anaemia such as
CC   drug-induced anaemia, immunohaemolytic disorder, genetic disorders such
CC   as haemoglobinopathy and inherited haemolytic anaemia, inadequate
CC   production despite adequate iron stores, chronic disease such as kidney
CC   failure, and chronic inflammatory disorder such as rheumatoid arthritis,
CC   or anaemia resulting from accidental or therapeutic radiation exposure.
CC   AAZ47932 to AAZ48029 represent phosphorothioate CpG oligonucleotides
CC   used in the exemplification of the present invention.
XX
SQ   Sequence 20 BP; 4 A; 6 C; 3 G; 7 T; 0 other;

  Query Match             100.0%;  Score 20;  DB 21;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 0.83;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATAACGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATAACGTTCCTGATGCT 20


RESULT 11
AAH50573
ID   AAH50573 standard; DNA; 20 BP.
XX
AC   AAH50573;
XX
DT   22-AUG-2001  (first entry)
XX
DE   Mouse IL-6 and B cell activation oligonucleotide SEQ ID NO:3.
XX
KW   Immunostimulatory; inducing; natural killer cell; lytic activity;
KW   unmethylated CpG dinucleotide; immune response; B cell proliferation;
KW   Th1; immune activation; interleukin 6; IL-6; interferon gamma;
KW   IFN-gamma; cytokine; ss.
XX
OS   Mus sp.
OS   Synthetic.
XX
PN   US6239116-B1.
XX
PD   29-MAY-2001.
XX
PF   30-OCT-1997;   97US-0960774.
XX
PR   30-OCT-1996;   96US-0738652.
XX
PA   (IOWA ) UNIV IOWA RES FOUND.
PA   (COLE-) COLEY PHARM GROUP INC.
PA   (USSH ) US DEPT HEALTH & HUMAN SERVICES.
XX
PI   Krieg AM,  Kline JN;
XX
DR   WPI; 2001-380456/40.
XX
PT   Methods for inducing Il-6, interferon-gamma or Il-12, or stimulating
PT   natural killer cell lytic activity in a human, comprise administering
PT   to the subject or exposing a natural killer cell to immunostimulatory
PT   nucleic acids  -
XX
PS   Disclosure; Column 19; 74pp; English.
XX
CC   The present invention describes methods for inducing interleukin 6
CC   (IL-6), interferon-gamma (IFN-gamma) or IL-12, or for stimulating
CC   natural killer cell lytic activity. The methods comprise administering
CC   to the subject or exposing a natural killer cell to an immunostimulatory
CC   nucleic acid. Also described are: (1) inducing IL-6 in a subject
CC   comprising administering to the subject to induce IL-6 in the subject
CC   the immunostimulatory nucleic acid; (2) stimulating natural killer cell
CC   lytic activity comprising exposing a natural killer cell to the
CC   immunostimulatory nucleic acid to stimulate natural killer cell lytic
CC   activity; (3) inducing interferon-gamma in a subject to treat an immune
CC   system deficiency comprising administering to the subject to induce
CC   interferon-gamma production, the immunostimulatory nucleic acid; and
CC   (4) inducing IL-12 in a subject comprising administering to the subject
CC   the immunostimulatory nucleic acid. The methods are useful for inducing
CC   IL-6, interferon-gamma or IL-12, or stimulating natural killer cell
CC   lytic activity in a subject, particularly a human. The methods are
CC   particularly useful for modulating an immune response. AAH50571 to
CC   AAH50671 represent oligonucleotide sequences used in the exemplification
CC   of the present invention.
XX
SQ   Sequence 20 BP; 4 A; 6 C; 3 G; 7 T; 0 other;

  Query Match             100.0%;  Score 20;  DB 22;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 0.83;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;
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Qy      1 TCCATAACGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATAACGTTCCTGATGCT 20
```

RESULT 12
AAF98799
ID  AAF98799 standard; DNA; 20 BP.
XX
AC  AAF98799;
XX
DT  11-JUN-2001  (first entry)
XX
DE  CpG immunostimulatory nucleic acid SEQ ID NO: 77.
XX
KW  Immunostimulatory nucleic acid; ISNA; human; interferon alpha; IFN-alpha;
KW  viral infection; phosphorothioate backbone; palindrome; cancer; ds.
XX
OS  Synthetic.
XX
PN  WO200122990-A2.
XX
PD  05-APR-2001.
XX
PF  27-SEP-2000; 2000WO-US26527.
XX
PR  27-SEP-1999;  99US-0156147.
XX
PA  (COLE-) COLEY PHARM GROUP INC.
PA  (IOWA ) UNIV IOWA RES FOUND.
XX
PI  Hartmann G,  Bratzler RL,  Krieg A;
XX
DR  WPI; 2001-290487/30.
XX
PT  Improving the efficacy of treatments involving the administration of
PT  interferon-alpha by co-administering an isolated immunostimulatory
PT  nucleic acid -
XX
PS  Disclosure; Page 22; 168pp; English.
XX
CC  The present invention describes an improvement to a method requiring the
CC  administration of interferon alpha (IFN-alpha), involving administering
CC  an immunostimulatory nucleic acid (ISNA). The sequences of a number of
CC  such nucleic acids are also provided. These may comprise oligonucleotides
CC  with phosphorothioate backbones, palindromes, or G-rich sequences. The
CC  sequences of the invention are useful in the treatment of proliferative
CC  diseases, such as cancers, and viral infections. The present sequence is
CC  an example of an immunostimulatory oligonucleotide.
XX
SQ  Sequence 20 BP; 4 A; 6 C; 3 G; 7 T; 0 other;

```
  Query Match            100.0%;  Score 20;  DB 22;  Length 20;
  Best Local Similarity  100.0%;  Pred. No. 0.83;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATAACGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATAACGTTCCTGATGCT 20
```

RESULT 13
AAF99577
ID  AAF99577 standard; DNA; 20 BP.
XX
AC  AAF99577;
XX
DT  12-JUN-2001  (first entry)
XX
DE  Immunostimulatory nucleic acid #693.
XX
KW  Vaccine; cytostatic; virucidal; bactericidal; fungicidal; anti-parasitic;
KW  immunostimulatory; tumour; viral infection; bacterial infection;
KW  fungal infection; parasitic infection; cancer; asthma;
KW  infectious disease; allergy; immune deficiency; phosphorothioate; ss.
XX
OS  Synthetic.
XX
PN  WO200122972-A2.
XX
PD  05-APR-2001.
XX
PF  25-SEP-2000; 2000WO-US26383.
XX
PR  25-SEP-1999;  99US-0156113.
PR  27-SEP-1999;  99US-0156135.
PR  23-AUG-2000; 2000US-0227436.
XX
PA  (IOWA ) UNIV IOWA RES FOUND.
PA  (COLE-) COLEY PHARM GMBH.
XX
PI  Krieg AM,  Schetter C,  Vollmer J;
XX
DR  WPI; 2001-273485/28.
XX
PT  Vaccinating against tumors, infectious diseases, allergies and asthma
PT  using immunostimulatory Py-rich and TG nucleic acids -
XX
PS  Claim 101; Page 53; 338pp; English.
XX
CC  The present invention relates to a method for stimulating an immune
CC  response. The method comprises administering an immunostimulatory nucleic
CC  acid to a non-rodent subject in sufficient quantity to stimulate an
CC  immune response. The present sequence is one such immunostimulatory
CC  nucleic acid. The immunostimulatory nucleic acids can be pyrimidine rich
CC  (py-rich) or thymidine (T) rich. The method is used to vaccinate subjects
CC  against tumour antigens, viral antigens (e.g. herpesviridae, retroviridae
CC  and/or orthomyxoviridae), bacterial antigens (e.g. toxoplasma,
CC  haemophilus, campylobacter, clostridium, Escherichia coli and/or
CC  staphylococcus), fungal antigens and/or parasitic antigens. The method is
CC  also useful for preventing cancer, asthma, infectious disease, allergy or
CC  immune deficiency. The present sequence can also be used to redirect a
CC  Th2 to a Th1 immune response and to activate immune cells.
CC  Note: the present sequence may have a phosphorothioate backbone.
XX
SQ  Sequence 20 BP; 4 A; 6 C; 3 G; 7 T; 0 other;

```
  Query Match            100.0%;  Score 20;  DB 22;  Length 20;
  Best Local Similarity  100.0%;  Pred. No. 0.83;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATAACGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATAACGTTCCTGATGCT 20
```

RESULT 14
AAH19253
ID  AAH19253 standard; DNA; 20 BP.
XX
AC  AAH19253;
XX
DT  13-JUL-2001  (first entry)
XX
DE  Phosphodiester CpG oligonucleotide #2.
XX
KW  Immunostimulant; antiallergic; cytostatic; antiasthmatic; vaccine;
KW  gene therapy; CpG; immune system deficiency; tumour; cancer; infection;
KW  leukaemia; ss.
XX
OS  Synthetic.
XX
PN  US6207646-B1.
XX
PD  27-MAR-2001.

XX
PF 30-OCT-1996; 96US-0738652.
XX
PR 07-FEB-1995; 95US-0386063.
PR 15-JUL-1994; 94US-0276358.
XX
PA (IOWA ) UNIV IOWA RES FOUND.
PA (COLE-) COLEY PHARM GROUP INC.
PA (USSH ) US DEPT HEALTH & HUMAN SERVICES.
XX
PI Krieg AM, Kline J, Klinman D, Steinberg AD;
XX
DR WPI; 2001-280761/29.
XX
PT Compositions comprising immunostimulatory molecules which comprise
PT unmethylated CpG dinucleotides useful for ameliorating immune system
PT deficiency, treating leukemia and desensitizing subject against
PT allergic response -
XX
PS Disclosure; Column 7; 55pp; English.
XX
CC The present invention relates to a composition comprising an isolated
CC immunostimulatory nucleic acid which comprises unmethylated
CC cytosine-guanine (CpG) dinucleotides and an antigen in a carrier. The
CC present sequence is an oligonucleotide, which was used in the present
CC invention. The immunostimulatory nucleic acids are useful for
CC ameliorating an immune system deficiency (the presence of tumour, cancer
CC or infectious agent) in a subject. The immunostimulatory nucleic acids
CC are also useful for desensitising a subject against the occurrence of an
CC allergic reaction in response to contact with a particular allergen.
CC The immunostimulatory nucleic acids are also useful for vaccination and
CC for treating leukaemia in a subject on administration prior to or in
CC conjunction with a chemotherapy, so that the subject's leukaemia cells
CC are more sensitive to chemotherapy. The compositions are useful for
CC inducing an antigen specific immune response in the subject. The
CC compositions can be also used to treat or prevent the symptoms of asthma.
XX
SQ Sequence 20 BP; 4 A; 6 C; 3 G; 7 T; 0 other;

Query Match 100.0%; Score 20; DB 22; Length 20;
Best Local Similarity 100.0%; Pred. No. 0.83;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 TCCATAACGTTCCTGATGCT 20
||||||||||||||||||||
Db 1 TCCATAACGTTCCTGATGCT 20

RESULT 15
AAH19295
ID AAH19295 standard; DNA; 20 BP.
XX
AC AAH19295;
XX
DT 13-JUL-2001 (first entry)
XX
DE CpG Oligonucleotide 1639.
XX
KW Immunostimulant; antiallergic; cytostatic; antiasthmatic; vaccine;
KW gene therapy; CpG; immune system deficiency; tumour; cancer; infection;
KW leukaemia; ss.
XX
OS Synthetic.
XX
PN US6207646-B1.
XX
PD 27-MAR-2001.
XX
PF 30-OCT-1996; 96US-0738652.
XX
PR 07-FEB-1995; 95US-0386063.
PR 15-JUL-1994; 94US-0276358.
XX
PA (IOWA ) UNIV IOWA RES FOUND.
PA (COLE-) COLEY PHARM GROUP INC.
PA (USSH ) US DEPT HEALTH & HUMAN SERVICES.
XX
PI Krieg AM, Kline J, Klinman D, Steinberg AD;
XX
DR WPI; 2001-280761/29.
XX
PT Compositions comprising immunostimulatory molecules which comprise
PT unmethylated CpG dinucleotides useful for ameliorating immune system
PT deficiency, treating leukemia and desensitizing subject against
PT allergic response -
XX
PS Disclosure; Columns 17-18; 55pp; English.
XX
CC The present invention relates to a composition comprising an isolated
CC immunostimulatory nucleic acid which comprises unmethylated
CC cytosine-guanine (CpG) dinucleotides and an antigen in a carrier. The
CC present sequence is an oligonucleotide, which was used in the present
CC invention. The immunostimulatory nucleic acids are useful for
CC ameliorating an immune system deficiency (the presence of tumour, cancer
CC or infectious agent) in a subject. The immunostimulatory nucleic acids
CC are also useful for desensitising a subject against the occurrence of an
CC allergic reaction in response to contact with a particular allergen.
CC The immunostimulatory nucleic acids are also useful for vaccination and
CC for treating leukaemia in a subject on administration prior to or in
CC conjunction with a chemotherapy, so that the subject's leukaemia cells
CC are more sensitive to chemotherapy. The compositions are useful for
CC inducing an antigen specific immune response in the subject. The
CC compositions can be also used to treat or prevent the symptoms of asthma.
XX
SQ Sequence 20 BP; 4 A; 6 C; 3 G; 7 T; 0 other;

Query Match 100.0%; Score 20; DB 22; Length 20;
Best Local Similarity 100.0%; Pred. No. 0.83;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 TCCATAACGTTCCTGATGCT 20
||||||||||||||||||||
Db 1 TCCATAACGTTCCTGATGCT 20

Search completed: March 1, 2003, 23:05:57
Job time : 143.75 secs

GenCore version 5.1.4_p5_4578


OM nucleic - nucleic search, using sw model

Run on: March 1, 2003, 22:50:16 ; Search time 1059.75 Seconds
(without alignments)
305.647 Million cell updates/sec

Title: US-09-818-918-45
Perfect score: 20
Sequence: 1 tccataacgttcctgatgct 20

Scoring table: IDENTITY_NUC
Gapop 10.0 , Gapext 1.0

Searched: 16154066 seqs, 8097743376 residues

Total number of hits satisfying chosen parameters: 357874

Minimum DB seq length: 0
Maximum DB seq length: 100

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : EST:*
1: em_estba:*
2: em_esthum:*
3: em_estin:*
4: em_estmu:*
5: em_estov:*
6: em_estpl:*
7: em_estro:*
8: em_htc:*
9: gb_est1:*
10: gb_est2:*
11: gb_htc:*
12: gb_est3:*
13: gb_est4:*
14: gb_est5:*
15: em_estfun:*
16: em_estom:*
17: gb_gss:*
18: em_gss_hum:*
19: em_gss_inv:*
20: em_gss_pln:*
21: em_gss_vrt:*
22: em_gss_fun:*
23: em_gss_mam:*
24: em_gss_mus:*
25: em_gss_other:*
26: em_gss_pro:*
27: em_gss_rod:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

| | Result No. | Score | % Query Match | Length | DB | ID | Description |
|---|---|---|---|---|---|---|---|
| c | 1 | 15.2 | 76.0 | 70 | 9 | AA855652 | AA855652 vw70g01.r |
| c | 2 | 15.2 | 76.0 | 97 | 9 | AA082589 | AA082589 zn23g09.r |
| | 3 | 14.8 | 74.0 | 87 | 10 | BE491972 | BE491972 GREB199 e |
| c | 4 | 14.4 | 72.0 | 100 | 9 | AA166089 | AA166089 ms24c06.r |
| c | 5 | 13.8 | 69.0 | 61 | 10 | BE324075 | BE324075 NF013B06P |
| c | 6 | 13.8 | 69.0 | 90 | 9 | AU255708 | AU255708 AU255708 |
| c | 7 | 13.6 | 68.0 | 44 | 17 | AZ797253 | AZ797253 2M0053E23 |
| | 8 | 13.6 | 68.0 | 46 | 9 | AA611416 | AA611416 vo51f04.r |
| | 9 | 13.6 | 68.0 | 52 | 17 | AL756790 | AL756790 Arabidops |
| | 10 | 13.2 | 66.0 | 49 | 9 | AI186519 | AI186519 qd35b02.x |
| | 11 | 13.2 | 66.0 | 73 | 14 | W85340 | W85340 mf46d06.r1 |
| c | 12 | 12.8 | 64.0 | 61 | 14 | H55250 | H55250 CHR220189 C |
| c | 13 | 12.8 | 64.0 | 78 | 17 | AZ694137 | AZ694137 AST-2HBG1 |
| | 14 | 12.8 | 64.0 | 89 | 17 | B38935 | B38935 HS-1048-B2- |
| c | 15 | 12.8 | 64.0 | 94 | 17 | AZ957967 | AZ957967 2M0225I02 |
| c | 16 | 12.6 | 63.0 | 40 | 17 | AZ772376 | AZ772376 1M0583O11 |
| | 17 | 12.6 | 63.0 | 47 | 12 | BE866303 | BE866303 601678950 |
| | 18 | 12.6 | 63.0 | 63 | 9 | AU076705 | AU076705 AU076705 |
| c | 19 | 12.6 | 63.0 | 69 | 14 | BQ756528 | BQ756528 EBem09_SQ |
| c | 20 | 12.6 | 63.0 | 74 | 17 | AZ407297 | AZ407297 1M0176K20 |
| | 21 | 12.6 | 63.0 | 75 | 17 | AZ770281 | AZ770281 1M0571F15 |
| | 22 | 12.6 | 63.0 | 95 | 17 | AQ845932 | AQ845932 LMAJFV1_1 |
| c | 23 | 12.6 | 63.0 | 96 | 9 | AA108156 | AA108156 ml89b03.r |
| | 24 | 12.6 | 63.0 | 100 | 9 | AI181454 | AI181454 uc61g02.r |
| | 25 | 12.6 | 63.0 | 100 | 10 | AW682769 | AW682769 PSL-27 Ex |
| c | 26 | 12.4 | 62.0 | 67 | 17 | AZ772522 | AZ772522 1M0583N24 |
| | 27 | 12.4 | 62.0 | 69 | 12 | BG065342 | BG065342 H3030A03- |
| | 28 | 12.4 | 62.0 | 78 | 10 | AV949979 | AV949979 AV949979 |
| c | 29 | 12.2 | 61.0 | 40 | 9 | AI790067 | AI790067 ue67a09.r |
| c | 30 | 12.2 | 61.0 | 41 | 17 | AZ830128 | AZ830128 2M0109K09 |
| c | 31 | 12.2 | 61.0 | 50 | 9 | AU105765 | AU105765 AU105765 |
| c | 32 | 12.2 | 61.0 | 64 | 13 | BI097406 | BI097406 SWOv3MCAM |
| | 33 | 12.2 | 61.0 | 65 | 9 | AU258102 | AU258102 AU258102 |
| c | 34 | 12.2 | 61.0 | 67 | 13 | BI702811 | BI702811 fr61f10.y |
| c | 35 | 12.2 | 61.0 | 67 | 13 | BI702948 | BI702948 fr66e04.y |
| c | 36 | 12.2 | 61.0 | 67 | 13 | BM186885 | BM186885 fv79b12.y |
| | 37 | 12.2 | 61.0 | 68 | 12 | BF506900 | BF506900 10952P-19 |
| | 38 | 12.2 | 61.0 | 71 | 17 | AZ614823 | AZ614823 1M0443N18 |
| c | 39 | 12.2 | 61.0 | 77 | 12 | BG837283 | BG837283 Zm10_07g0 |
| | 40 | 12.2 | 61.0 | 85 | 14 | F27246 | F27246 HSPD15096 H |
| | 41 | 12.2 | 61.0 | 88 | 9 | AI940828 | AI940828 sb79g10.y |
| c | 42 | 12.2 | 61.0 | 94 | 9 | AA003313 | AA003313 mg47e10.r |
| c | 43 | 12.2 | 61.0 | 100 | 12 | BF638258 | BF638258 NF053F11P |
| | 44 | 12 | 60.0 | 22 | 17 | AZ788996 | AZ788996 2M0036O22 |
| c | 45 | 12 | 60.0 | 43 | 17 | AZ592659 | AZ592659 1M0403B17 |

ALIGNMENTS

RESULT 1
AA855652/c
LOCUS AA855652 70 bp mRNA linear EST 06-MAR-1998
DEFINITION vw70g01.r1 Stratagene mouse heart (#937316) Mus musculus cDNA clone IMAGE:1260336 5' similar to gb:M11301 Mouse (MOUSE);, mRNA sequence.
ACCESSION AA855652
VERSION AA855652.1 GI:2943190
KEYWORDS EST.
SOURCE house mouse.
ORGANISM Mus musculus
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
REFERENCE 1 (bases 1 to 70)
AUTHORS Marra,M., Hillier,L., Allen,M., Bowles,M., Dietrich,N., Dubuque,T., Geisel,S., Kucaba,T., Lacy,M., Le,M., Martin,J., Morris,M., Schellenberg,K., Steptoe,M., Tan,F., Underwood,K., Moore,B., Theising,B., Wylie,T., Lennon,G., Soares,B., Wilson,R. and Waterston,R.
TITLE The WashU-HHMI Mouse EST Project
JOURNAL Unpublished (1996)
COMMENT Contact: Marra M/Mouse EST Project
WashU-HHMI Mouse EST Project
Washington University School of MedicineP
4444 Forest Park Parkway, Box 8501, St. Louis, MO 63108
Tel: 314 286 1800
Fax: 314 286 1810
Email: mouseest@watson.wustl.edu
This clone is available royalty-free through LLNL ; contact the

```
            IMAGE Consortium (info@image.llnl.gov) for further information.
            MGI:662888
            Seq primer: -28m13 rev1 ET from Amersham
            High quality sequence stop: 19.
FEATURES              Location/Qualifiers
     source           1. .70
                      /organism="Mus musculus"
                      /strain="NIH Swiss"
                      /db_xref="taxon:10090"
                      /clone="IMAGE:1260336"
                      /clone_lib="Stratagene mouse heart (#937316)"
                      /sex="pooled"
                      /tissue_type="heart"
                      /dev_stage="13 day embryos"
                      /lab_host="SOLR (kanamycin resistant)"
                      /note="Organ: heart; Vector: pBluescript SK-; Site_1:
                      EcoRI; Site_2: XhoI; Cloned unidirectionally.  Primer:
                      Oligo dT. 93 pooled NIH/Swiss 13 day embryo hearts.
                      Average insert size: 1.0 kb; Uni-ZAP XR Vector; ~5'
                      adaptor sequence: 5' GAATTCGGCACGAG 3' ~3' adaptor
                      sequence: 5' CTCGAGTTTTTTTTTTTTTTTTT 3'"
BASE COUNT       20 a     22 c     17 g     11 t
ORIGIN

  Query Match             76.0%;  Score 15.2;  DB 9;  Length 70;
  Best Local Similarity   85.0%;  Pred. No. 3.3e+03;
  Matches   17;  Conservative    0;  Mismatches    3;  Indels    0;  Gaps    0;

Qy      1 TCCATAACGTTCCTGATGCT 20
          |||||  || ||||||||||
Db     36 TCCATGTCGGTCCTGATGCT 17


RESULT 2
AA082589/c
LOCUS       AA082589                97 bp    mRNA    linear   EST 23-DEC-1997
DEFINITION  zn23g09.r1 Stratagene neuroepithelium NT2RAMI 937234 Homo sapiens
            cDNA clone IMAGE:548320 5' similar to TR:G387484 G387484 POL
            PROTEIN ;, mRNA sequence.
ACCESSION   AA082589
VERSION     AA082589.1  GI:1624648
KEYWORDS    EST.
SOURCE      human.
  ORGANISM  Homo sapiens
            Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
            Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
REFERENCE   1  (bases 1 to 97)
  AUTHORS   Hillier,L., Lennon,G., Becker,M., Bonaldo,M.F., Chiapelli,B.,
            Chissoe,S., Dietrich,N., DuBuque,T., Favello,A., Gish,W., Hawkins
            ,M., Hultman,M., Kucaba,T., Lacy,M., Le,M., Le,N., Mardis,E., Moore
            ,B., Morris,M., Parsons,J., Prange,C., Rifkin,L., Rohlfing,T.,
            Schellenberg,K., Soares,M.B., Tan,F., Thierry-Meg,J., Trevaskis,E.,
            Underwood,K., Wohldmann,P., Waterston,R., Wilson,R. and Marra,M.
  TITLE     Generation and analysis of 280,000 human expressed sequence tags
  JOURNAL   Genome Res. 6 (9), 807-828 (1996)
  MEDLINE   97044478
COMMENT     Contact: Wilson RK
            Washington University School of Medicine
            4444 Forest Park Parkway, Box 8501, St. Louis, MO 63108
            Tel: 314 286 1800
            Fax: 314 286 1810
            Email: est@watson.wustl.edu
            WARNING: There is evidence that suggests that the 384-well parent
            plate of this clone contains both human and mouse derived clones.
            Thus, the origin of this clone is uncertain. This caution should be
            kept in mind should you use this clone.

            This clone is available royalty-free through LLNL ; contact the
            IMAGE Consortium (info@image.llnl.gov) for further information.
            Trace considered overall poor quality
            Possible reversed clone: similarity on wrong strand
            Seq primer: -28M13 rev2 from Amersham
            High quality sequence stop: 1.
FEATURES              Location/Qualifiers
     source           1. .97
                      /organism="Homo sapiens"
                      /db_xref="GDB:3926836"
                      /db_xref="taxon:9606"
                      /clone="IMAGE:548320"
                      /clone_lib="Stratagene neuroepithelium NT2RAMI 937234"
                      /dev_stage="Ntera-2/RA+MI neuroepithelial cells"
                      /lab_host="SOLR (kanamycin resistant)"
                      /note="Vector: pBluescript SK-; Site_1: EcoRI; Site_2:
                      XhoI; Cloned unidirectionally.  Primer: Oligo dT. NT2
                      (Ntera-2/c1.D1)  precursor cells induced with Retinoic
                      Acid for 1 week, followed by 3 weeks in mitotic inhibitors
                      (Replate #2). Average insert size: 1.1 kb; Uni-ZAP XR
                      Vector; ~5' adaptor sequence: 5' GAATTCGGCACGAG 3' ~3'
                      adaptor sequence: 5' CTCGAGTTTTTTTTTTTTTTTTT 3'"
BASE COUNT       24 a     31 c     23 g     11 t      8 others
ORIGIN

  Query Match             76.0%;  Score 15.2;  DB 9;  Length 97;
  Best Local Similarity   85.0%;  Pred. No. 3.6e+03;
  Matches   17;  Conservative    0;  Mismatches    3;  Indels    0;  Gaps    0;

Qy      1 TCCATAACGTTCCTGATGCT 20
          |||||  || ||||||||||
Db     44 TCCATGTCGGTCCTGATGCT 25


RESULT 3
BE491972
LOCUS       BE491972                87 bp    mRNA    linear   EST 03-JAN-2001
DEFINITION  GREB199 estradiol-responsive cDNAs from MCF7 cell line (Homo
            sapiens breast adenocarcinoma) Homo sapiens cDNA clone GREB199,
            mRNA sequence.
ACCESSION   BE491972
VERSION     BE491972.1  GI:11079927
KEYWORDS    EST.
SOURCE      human.
  ORGANISM  Homo sapiens
            Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
            Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
REFERENCE   1  (bases 1 to 87)
  AUTHORS   Ghosh,M.G., Thompson,D.A. and Weigel,R.J.
  TITLE     PDZK1 and GREB1 are estrogen-regulated genes expressed in
            hormone-responsive breast cancer
  JOURNAL   Cancer Res. 60 (22), 6367-6375 (2000)
  MEDLINE   20552162
COMMENT     Contact: Thompson, D.A.
            Department of Surgery
            Stanford University
            MSLS Building, Room P228, 1201 Welch Road., Stanford, CA 94305, USA
            Tel: 650 498 5510
            Fax: 650 723 8762
            Email: devont@leland.stanford.edu
            Seq primer: T7.
FEATURES              Location/Qualifiers
     source           1. .87
                      /organism="Homo sapiens"
                      /db_xref="taxon:9606"
                      /clone="GREB199"
                      /clone_lib="estradiol-responsive cDNAs from MCF7 cell line
                      (Homo sapiens breast adenocarcinoma)"
                      /sex="female"
                      /tissue_type="breast"
                      /cell_line="adenocarcinoma"
                      /note="Vector: pCDNA 2.1 TA cloning vector; Site_1: EcoR
                      I; Site_2: EcoR I; fragments generated using suppression
                      subtractive hybridization (SSH) PCR with polyA+RNA from
                      MCF7 cells"
BASE COUNT       11 a     24 c     22 g     30 t
ORIGIN

  Query Match             74.0%;  Score 14.8;  DB 10;  Length 87;
```

```
  Best Local Similarity   88.9%;  Pred. No. 5.4e+03;
  Matches   16;  Conservative    0;  Mismatches    2;  Indels    0;  Gaps    0;

Qy       1 TCCATAACGTTCCTGATG 18
           ||||| |||||||||| ||
Db      38 TCCATTACGTTCCTGTTG 55


RESULT 4
AA166089/c
LOCUS       AA166089                100 bp    mRNA    linear   EST 12-FEB-1997
DEFINITION  ms24c06.r1 Stratagene mouse skin (#937313) Mus musculus cDNA clone
            IMAGE:607882 5' similar to SW:PSP_MOUSE P07743 PAROTID SECRETORY
            PROTEIN PRECURSOR ;, mRNA sequence.
ACCESSION   AA166089
VERSION     AA166089.1  GI:1744651
KEYWORDS    EST.
SOURCE      house mouse.
  ORGANISM  Mus musculus
            Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
            Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
REFERENCE   1  (bases 1 to 100)
  AUTHORS   Marra,M., Hillier,L., Allen,M., Bowles,M., Dietrich,N., Dubuque,T.,
            Geisel,S., Kucaba,T., Lacy,M., Le,M., Martin,J., Morris,M.,
            Schellenberg,K., Steptoe,M., Tan,F., Underwood,K., Moore,B.,
            Theising,B., Wylie,T., Lennon,G., Soares,B., Wilson,R. and
            Waterston,R.
  TITLE     The WashU-HHMI Mouse EST Project
  JOURNAL   Unpublished (1996)
COMMENT     Contact: Marra M/Mouse EST Project
            WashU-HHMI Mouse EST Project
            Washington University School of MedicineP
            4444 Forest Park Parkway, Box 8501, St. Louis, MO 63108
            Tel: 314 286 1800
            Fax: 314 286 1810
            Email: mouseest@watson.wustl.edu
            This clone is available royalty-free through LLNL ; contact the
            IMAGE Consortium (info@image.llnl.gov) for further information.
            MGI:373314
            Possible reversed clone: similarity on wrong strand
            Seq primer: -28m13 rev1 ET from Amersham
            High quality sequence stop: 1.
FEATURES             Location/Qualifiers
     source          1. .100
                     /organism="Mus musculus"
                     /strain="C57BL/6"
                     /db_xref="taxon:10090"
                     /clone="IMAGE:607882"
                     /clone_lib="Stratagene mouse skin (#937313)"
                     /sex="females"
                     /tissue_type="whole skin"
                     /dev_stage="11 weeks old"
                     /lab_host="SOLR (kanamycin resistant)"
                     /note="Organ: skin; Vector: pBluescript SK-; Site_1: EcoRI
                     ; Site_2: XhoI; Cloned unidirectionally.  Primer: Oligo
                     dT. Whole skin from 11 week old C57BL/6 female mice.
                     Average insert size: 1.0 kb; Uni-ZAP XR Vector; ~5'
                     adaptor sequence: 5' GAATTCGGCACGAG 3' ~3' adaptor
                     sequence: 5' CTCGAGTTTTTTTTTTTTTTTTT 3'"
BASE COUNT       32 a     17 c     23 g     28 t
ORIGIN

  Query Match            72.0%;  Score 14.4;  DB 9;  Length 100;
  Best Local Similarity  93.8%;  Pred. No. 8.7e+03;
  Matches   15;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy       2 CCATAACGTTCCTGAT 17
           ||||||| ||||||||
Db      77 CCATAACATTCCTGAT 62


RESULT 5
BE324075/c
LOCUS       BE324075                61 bp    mRNA    linear   EST 21-DEC-2000
DEFINITION  NF013B06PL1F1045 Phosphate starved leaf Medicago truncatula cDNA
            clone NF013B06PL 5', mRNA sequence.
ACCESSION   BE324075
VERSION     BE324075.2  GI:11966739
KEYWORDS    EST.
SOURCE      barrel medic.
  ORGANISM  Medicago truncatula
            Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
            Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots;
            Rosidae; eurosids I; Fabales; Fabaceae; Papilionoideae; Trifolieae;
            Medicago.
REFERENCE   1  (bases 1 to 61)
  AUTHORS   Liu,J., Scott,A.D., Harris,A.R., Gonzales,R.A., Bell,C.J., Flores
            ,H.R., Inman,J.T., Weller,J.W., May,G.D. and Harrison,M.J.
  TITLE     Expressed Sequence Tags from the Samuel Roberts Noble Foundation
            Medicago truncatula phosphate-starved leaf library
  JOURNAL   Unpublished (2000)
COMMENT     On Jul 14, 2000 this sequence version replaced gi:9197852.
            Contact: Harrison MJ
            Plant Biology Division
            The Samuel Roberts Noble Foundation
            2510 Sam Noble Parkway, Ardmore, OK 73402, USA
            Tel: 580 221 7325
            Fax: 580 221 7380
            Email: mjharrison@noble.org
            Medicago Genome Initiative accession: MGI:S:21529
            Insert Length: 836   Std Error: 0.00
            Plate: 013  row: B  column: 06
            Seq primer: TCACACAGGAAACAGCTATGAC.
FEATURES             Location/Qualifiers
     source          1. .61
                     /organism="Medicago truncatula"
                     /db_xref="taxon:3880"
                     /clone="NF013B06PL"
                     /clone_lib="Phosphate starved leaf"
                     /tissue_type="leaf"
                     /dev_stage="trifoliate"
                     /note="Vector: Lambda Zap; At the trifoliate stage, M.
                     truncatula plants were transplanted to phosphate-free sand
                     and grown for a further 30 days.  During this 30 day
                     period, the plants were fertilized twice weekly with 1/2
                     Hoaglands solution containing only 20uM potassium
                     phosphate.  RNA was prepared from above ground tissues."
BASE COUNT       15 a      8 c     14 g     24 t
ORIGIN

  Query Match            69.0%;  Score 13.8;  DB 10;  Length 61;
  Best Local Similarity  88.2%;  Pred. No. 1.5e+04;
  Matches   15;  Conservative    0;  Mismatches    2;  Indels    0;  Gaps    0;

Qy       3 CATAACGTTCCTGATGC 19
           |||||| |||||| |||
Db      17 CATAACTTTCCTGGTGC 1


RESULT 6
AU255708/c
LOCUS       AU255708                90 bp    mRNA    linear   EST 25-APR-2002
DEFINITION  AU255708 3'-directed mouse cDNA library Mus musculus cDNA clone
            BED0006231 3', mRNA sequence.
ACCESSION   AU255708
VERSION     AU255708.1  GI:20318706
KEYWORDS    EST.
SOURCE      house mouse.
  ORGANISM  Mus musculus
            Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
            Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
REFERENCE   1  (bases 1 to 90)
  AUTHORS   Kato,K. and Matoba,R.
  TITLE     Generation of expressed sequence tags from mouse brain
  JOURNAL   Unpublished (2002)
COMMENT     Contact: Kikuya Kato
```

Graduate School of Biological Sciences
Nara Institute of Science and Technology
8916-5 Takayama, Ikoma, Nara 630-0101, Japan
Tel: 81-743-72-5581
Fax: 81-743-72-5589
Email: kkato@bs.aist-nara.ac.jp,
URL:http://love2.aist-nara.ac.jp/BED/index.html.

FEATURES Location/Qualifiers
source 1. .90
/organism="Mus musculus"
/db_xref="taxon:10090"
/clone="BED0006231"
/clone_lib="3'-directed mouse cDNA library"
/tissue_type="brain"
/note="Vector: pGEM-T-easy"

BASE COUNT 23 a 23 c 27 g 17 t
ORIGIN

Query Match 69.0%; Score 13.8; DB 9; Length 90;
Best Local Similarity 88.2%; Pred. No. 1.6e+04;
Matches 15; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

Qy 1 TCCATAACGTTCCTGAT 17
|||| | ||||||||||
Db 18 TCCAGAGCGTTCCTGAT 2

RESULT 7
AZ797253/c
LOCUS AZ797253 44 bp DNA linear GSS 16-FEB-2001
DEFINITION 2M0053E23F Mouse 10kb plasmid UUGC1M library Mus musculus genomic clone UUGC2M0053E23 F, DNA sequence.
ACCESSION AZ797253
VERSION AZ797253.1 GI:12946141
KEYWORDS GSS.
SOURCE house mouse.
ORGANISM Mus musculus
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
REFERENCE 1 (bases 1 to 44)
AUTHORS Dunn,D.,Aoyagi,A., Barber,M., Beacorn,T., Duval,B., Hamil,C., Islam,H., Longacre,S., Mahmoud,M., Meenen,E., Pedersen,T., Reilly,M., Rose,M., Rose,R., Stokes,R., Tingey,A., von Niederhausern,A. and Wright,D.,Weiss,R.
TITLE Mouse whole genome scaffolding with paired end reads from 10kb plasmid inserts
JOURNAL Unpublished (2000)
COMMENT Contact: Robert B. Weiss
University of Utah Genome Center
University of Utah
Rm. 308, Biomedical Polymers Research Bldg., 20 S. 2030 E., SLC, UT 84112, USA
Tel: 801 585 5606
Fax: 801 585 7177
Email: ddunn@genetics.utah.edu
Insert Length: 10000 Std Error: 0.00
Plate: 0053 row: E column: 23
Seq primer: CGTTGTAAAACGACGGCCAGT
Class: plasmid ends
High quality sequence stop: 44.

FEATURES Location/Qualifiers
source 1. .44
/organism="Mus musculus"
/strain="C57BL/6J"
/db_xref="taxon:10090"
/clone="UUGC2M0053E23"
/clone_lib="Mouse 10kb plasmid UUGC1M library"
/sex="Male"
/lab_host="E. Coli strain XL10-Gold, T1-resistant, F-"
/note="Vector: PWD42nv; Purified genomic DNA from M. musculus C57BL/6J (male) was obtained from the Jackson Laboratory Mouse DNA Resource (http://www.jax.org/resources/documents/dnares/). The DNA was hydrodynamically sheared by repeated passage through a 0.005 inch orifice at constant velocity. The sheared DNA was blunt end-repaired with T4 DNA polymerase and T4 polynucleotide kinase. Adaptor oligonucleotides were ligated to the blunt ends in high molar excess. The adaptored DNA was purified and size-selected for a 9.5 to 10.5 kb range using preparative agarose gel electrophoresis. Vector DNA was prepared from a derivative of pWD42 (gi|4732114|gb|AF129072.1), a copy-number inducible derivative of plasmid R1. The vector was ligated with adaptors complementary to the insert adaptors and purified. The sheared, adaptored mouse DNA was annealed to adaptored vector DNA, and transformed into chemically-competent E. coli XL10-Gold (Stratagene) cells and selected for ampicillin resistance."

BASE COUNT 19 a 6 c 7 g 12 t
ORIGIN

Query Match 68.0%; Score 13.6; DB 17; Length 44;
Best Local Similarity 80.0%; Pred. No. 1.7e+04;
Matches 16; Conservative 0; Mismatches 4; Indels 0; Gaps 0;

Qy 1 TCCATAACGTTCCTGATGCT 20
| ||||| |||||||| ||
Db 39 TTCATAATGTTCCTGAGCCT 20

RESULT 8
AA611416
LOCUS AA611416 46 bp mRNA linear EST 01-OCT-1997
DEFINITION vo51f04.r1 Barstead mouse irradiated colon MPLRB7 Mus musculus cDNA clone IMAGE:1053439 5' similar to SW:IPYR_BOVIN P37980 INORGANIC PYROPHOSPHATASE ;, mRNA sequence.
ACCESSION AA611416
VERSION AA611416.1 GI:2461495
KEYWORDS EST.
SOURCE house mouse.
ORGANISM Mus musculus
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
REFERENCE 1 (bases 1 to 46)
AUTHORS Marra,M., Hillier,L., Allen,M., Bowles,M., Dietrich,N., Dubuque,T., Geisel,S., Kucaba,T., Lacy,M., Le,M., Martin,J., Morris,M., Schellenberg,K., Steptoe,M., Tan,F., Underwood,K., Moore,B., Theising,B., Wylie,T., Lennon,G., Soares,B., Wilson,R. and Waterston,R.
TITLE The WashU-HHMI Mouse EST Project
JOURNAL Unpublished (1996)
COMMENT Contact: Marra M/Mouse EST Project
WashU-HHMI Mouse EST Project
Washington University School of MedicineP
4444 Forest Park Parkway, Box 8501, St. Louis, MO 63108
Tel: 314 286 1800
Fax: 314 286 1810
Email: mouseest@watson.wustl.edu
This clone is available royalty-free through LLNL ; contact the IMAGE Consortium (info@image.llnl.gov) for further information.
MGI:585015
Trace considered overall poor quality
Possible reversed clone: similarity on wrong strand
Seq primer: -28m13 rev2 ET from Amersham
High quality sequence stop: 1.

FEATURES Location/Qualifiers
source 1. .46
/organism="Mus musculus"
/strain="FVB/N"
/db_xref="taxon:10090"
/clone="IMAGE:1053439"
/clone_lib="Barstead mouse irradiated colon MPLRB7"
/dev_stage="8 weeks"
/lab_host="DH10B"
/note="Vector: pT7T3D-Pac (Pharmacia) with a modified polylinker; Site_1: EcoRI; Site_2: NotI; Tissue obtained

from 8 week old mouse. Colon was harvested 72 hours after irradiation with 1400 Gys. 1st strand cDNA was primed with a Not I - oligo(dT) primer [5'TGTTACGAATCTGAAGTGGGAGCGGCCGCCCTTTTTTTTTTTTTTTTTTTTTT T 3']; double-stranded cDNA was ligated to Eco RI adaptors [AATTCGGATCCTTG], digested with Not I and cloned into the Not I and Eco RI sites of the modified pT7T3 vector. Library constructed by Bob Barstead. "

BASE COUNT 7 a 14 c 9 g 16 t
ORIGIN

Query Match 68.0%; Score 13.6; DB 9; Length 46;
Best Local Similarity 80.0%; Pred. No. 1.7e+04;
Matches 16; Conservative 0; Mismatches 4; Indels 0; Gaps 0;

```
Qy      1 TCCATAACGTTCCTGATGCT 20
          || ||  || ||||||||||
Db      6 TCTATTGCGATCCTGATGCT 25
```

RESULT 9
AL756790
LOCUS AL756790 52 bp DNA linear GSS 17-JUN-2002
DEFINITION Arabidopsis thaliana T-DNA flanking sequence GK-113C02-012567, genomic survey sequence.
ACCESSION AL756790
VERSION AL756790.1 GI:21489288
KEYWORDS GSS.
SOURCE thale cress.
ORGANISM Arabidopsis thaliana
Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots; Rosidae; eurosids II; Brassicales; Brassicaceae; Arabidopsis.
REFERENCE 1
AUTHORS Strizhov,N., Li,Y., Rosso,M., Viehoever,P., Dekker,K., Saedler,H. and Weisshaar,B.
TITLE A pipeline for automated high-throughput generation of FSTs (flanking sequence tags) from Arabidopsis thaliana T-DNA transformed lines
JOURNAL Unpublished
REFERENCE 2
AUTHORS Rosso,M., Strizhov,N., Li,Y., Reiss,B., Dekker,K. and Weisshaar,B.
TITLE A new Arabidopsis thaliana T-DNA mutagenised population (GABI-Kat) for flanking sequence tag based reverse genetics
JOURNAL Unpublished
REFERENCE 3 (bases 1 to 52)
AUTHORS Li,Y., Strizhov,N., Rosso,M. and Weisshaar,B.
TITLE Direct Submission
JOURNAL Submitted (17-JUN-2002) Weisshaar B., Max-Planck-Institut fuer Zuechtungsforschung, Carl-von-Linne-Weg 10, Koeln, 50829, Germany
COMMENT This sequence is recovered from the right border of the T-DNA. It indicates an insertion within the locus defined by clone F14D16. The sequences are generated at the MPI for Plant Breeding Research in the context of the GABI-Kat project. GABI-Kat is part of the German Plant Genomics program designated 'GABI'. Information on line availability can be found at: http://www.mpiz-koeln.mpg.de/GABI-Kat/.
FEATURES Location/Qualifiers
source 1. .52
/organism="Arabidopsis thaliana"
/strain="Columbia 0"
/db_xref="taxon:3702"
/clone="GK-113C02-012567"
/clone_lib="Arabidopsis thaliana T-DNA insertion lines"
/note="PCR was performed on DNA from Arabidopsis thaliana plants (T1) which were transformed with the T-DNA from vector pAC161. The lines contain one or more T-DNA insertions. The DNA fragment(s) resulting from the PCR were directly sequenced to determine the genomic sequence flanking the insertion. Sequences displaying significant similarity to the A. thalaina nuclear genome sequence were processed for submission. T-DNA derived sequences were removed"

BASE COUNT 19 a 7 c 4 g 22 t
ORIGIN

Query Match 68.0%; Score 13.6; DB 17; Length 52;
Best Local Similarity 80.0%; Pred. No. 1.7e+04;
Matches 16; Conservative 0; Mismatches 4; Indels 0; Gaps 0;

```
Qy      1 TCCATAACGTTCCTGATGCT 20
          |||||||| || ||||  ||
Db     29 TCCATAACTTTGCTGAATCT 48
```

RESULT 10
AI186519
LOCUS AI186519 49 bp mRNA linear EST 28-OCT-1998
DEFINITION qd35b02.x1 Soares_fetal_heart_NbHH19W Homo sapiens cDNA clone IMAGE:1731435 3' similar to SW:PMP2_MOUSE P42925 22 KD PEROXISOMAL MEMBRANE PROTEIN. ;, mRNA sequence.
ACCESSION AI186519
VERSION AI186519.1 GI:3737157
KEYWORDS EST.
SOURCE human.
ORGANISM Homo sapiens
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
REFERENCE 1 (bases 1 to 49)
AUTHORS NCI-CGAP http://www.ncbi.nlm.nih.gov/ncicgap.
TITLE National Cancer Institute, Cancer Genome Anatomy Project (CGAP), Tumor Gene Index
JOURNAL Unpublished (1997)
COMMENT Contact: Robert Strausberg, Ph.D.
Email: cgapbs-r@mail.nih.gov
This clone is available royalty-free through LLNL ; contact the IMAGE Consortium (info@image.llnl.gov) for further information.
Trace considered overall poor quality
Insert Length: 1133 Std Error: 0.00
Seq primer: -40UP from Gibco
High quality sequence stop: 1.
FEATURES Location/Qualifiers
source 1. .49
/organism="Homo sapiens"
/db_xref="taxon:9606"
/clone="IMAGE:1731435"
/clone_lib="Soares_fetal_heart_NbHH19W"
/sex="unknown"
/dev_stage="19 weeks"
/lab_host="DH10B (ampicillin resistant)"
/note="Organ: heart; Vector: pT7T3D (Pharmacia) with a modified polylinker; Site_1: Not I; Site_2: Eco RI; 1st strand cDNA was primed with a Not I - oligo(dT) primer [5' TGTTACCAATCTGAAGTGGGAGCGGCCGCATCTTTTTTTTTTTTTTTTT 3'], double-stranded cDNA was size selected, ligated to Eco RI adapters (Pharmacia), digested with Not I and cloned into the Not I and Eco RI sites of a modified pT7T3 vector (Pharmacia). Library went through one round of normalization to a Cot = 5. Library constructed by M.Fatima Bonaldo. This library was constructed from the same fetus as the fetal lung library, Soares fetal lung NbHL19W."
BASE COUNT 16 a 11 c 16 g 6 t
ORIGIN

Query Match 66.0%; Score 13.2; DB 9; Length 49;
Best Local Similarity 83.3%; Pred. No. 2.7e+04;
Matches 15; Conservative 0; Mismatches 3; Indels 0; Gaps 0;

```
Qy      1 TCCATAACGTTCCTGATG 18
          | || ||||||| |||||
Db      3 TGCAGAACGTTCATGATG 20
```

RESULT 11
W85340

```
LOCUS       W85340                    73 bp    mRNA    linear   EST 12-SEP-1996
DEFINITION  mf46d06.r1 Soares mouse embryo NbME13.5 14.5 Mus musculus cDNA
            clone IMAGE:408107 5' similar to gb:Z38015 M.musculus DMR-N9 gene,
            exons 4 and 5, and DM-PK gene encoding (MOUSE);, mRNA sequence.
ACCESSION   W85340
VERSION     W85340.1  GI:1397812
KEYWORDS    EST.
SOURCE      house mouse.
  ORGANISM  Mus musculus
            Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
            Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
REFERENCE   1  (bases 1 to 73)
  AUTHORS   Marra,M., Hillier,L., Allen,M., Bowles,M., Dietrich,N., Dubuque,T.,
            Geisel,S., Kucaba,T., Lacy,M., Le,M., Martin,J., Morris,M.,
            Schellenberg,K., Steptoe,M., Tan,F., Underwood,K., Moore,B.,
            Theising,B., Wylie,T., Lennon,G., Soares,B., Wilson,R. and
            Waterston,R.
  TITLE     The WashU-HHMI Mouse EST Project
  JOURNAL   Unpublished (1996)
COMMENT     Contact: Marra M/Mouse EST Project
            WashU-HHMI Mouse EST Project
            Washington University School of MedicineP
            4444 Forest Park Parkway, Box 8501, St. Louis, MO 63108
            Tel: 314 286 1800
            Fax: 314 286 1810
            Email: mouseest@watson.wustl.edu
            This clone is available royalty-free through LLNL ; contact the
            IMAGE Consortium (info@image.llnl.gov) for further information.
            MGI:251875
            Trace considered overall poor quality
            Seq primer: -28M13 rev2 from Amersham
            High quality sequence stop: 1.
FEATURES             Location/Qualifiers
     source          1. .73
                     /organism="Mus musculus"
                     /strain="C57BL/6J"
                     /db_xref="taxon:10090"
                     /clone="IMAGE:408107"
                     /clone_lib="Soares mouse embryo NbME13.5 14.5"
                     /sex="unknown"
                     /tissue_type="embryo"
                     /dev_stage="13.5-14.5dpc total fetus"
                     /lab_host="DH10B"
                     /note="Vector: pT7T3D-Pac (Pharmacia) with a modified
                     polylinker; Site_1: Not I; Site_2: Eco RI; 1st strand cDNA
                     was primed with a Not I - oligo(dT) primer [5'
                     TGTTACCAATCTGAAGTGGGAGCGGCCGCGGAAATTTTTTTTTTTTTTTTTTTTTTT
                     T 3'], on equal amounts of mRNA from 2 13.5dpc and 2
                     14.5dpc embryos [total RNA provided by  Minoru Ko, Wayne
                     State Univ., from 2 ]; double-stranded cDNA was ligated to
                     Eco RI adaptors (Pharmacia), digested with Not I and
                     cloned into the Not I and Eco RI sites of the modified
                     pT7T3 vector. Library went through one round of
                     normalization, and was constructed by Bento Soares and
                     M.Fatima Bonaldo.  "
BASE COUNT       14 a     23 c     18 g     18 t
ORIGIN

  Query Match             66.0%;  Score 13.2;  DB 14;  Length 73;
  Best Local Similarity   83.3%;  Pred. No. 3e+04;
  Matches   15;  Conservative    0;  Mismatches    3;  Indels    0;  Gaps    0;

Qy       2 CCATAACGTTCCTGATGC 19
           ||||| |||  |||||||
Db      49 CCATAGCGTCTCTGATGC 66


RESULT 12
H55250/c
LOCUS       H55250                    61 bp    mRNA    linear   EST 07-DEC-1995
DEFINITION  CHR220189 Chromosome 22 exon Homo sapiens cDNA clone C22_236 5',
            mRNA sequence.
ACCESSION   H55250
VERSION     H55250.1  GI:1108116
KEYWORDS    EST.
SOURCE      human.
  ORGANISM  Homo sapiens
            Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
            Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
REFERENCE   1  (bases 1 to 61)
  AUTHORS   Trofatter,J.A., Long,K.R., Murrell,J.R., Stotler,C.J., Gusella,J.F.
            and Buckler,A.J.
  TITLE     An expression-independent catalog of genes from human chromosome 22
  JOURNAL   Genome Res. 5 (3), 214-224 (1995)
  MEDLINE   96159527
COMMENT     Contact: Buckler AJ
            Molecular Neurogenetics Unit
            Massachusetts General Hospital
            Building 149, 13th St., Charlestown MA 02129
            Tel: 6177249616
            Fax: 6177265736
            Email: buckler@helix.mgh.harvard.edu
            Seq primer: T3.
FEATURES             Location/Qualifiers
     source          1. .61
                     /organism="Homo sapiens"
                     /db_xref="taxon:9606"
                     /clone="C22_236"
                     /clone_lib="Chromosome 22 exon"
                     /lab_host="E. coli DH5a"
                     /note="Vector: pBluescriptIIKS+; Site_1: Sal I; Site_2:
                     Bam HI (destroyed); Exons were isolated from human
                     chromosome 22 specific cosmids  using a modification of
                     the method of exon amplification (Proc. Natl. Acad. Sci.
                     USA 88:4005-4009, 1991).   Amplified exons were digested
                     with Sal I and Bgl II and subsequently cloned into
                     pBluescriptIIKS+ at the Sal I and Bam HI sites."
BASE COUNT       18 a     12 c     13 g     18 t
ORIGIN

  Query Match             64.0%;  Score 12.8;  DB 14;  Length 61;
  Best Local Similarity   87.5%;  Pred. No. 4.4e+04;
  Matches   14;  Conservative    0;  Mismatches    2;  Indels    0;  Gaps    0;

Qy       4 ATAACGTTCCTGATGC 19
           |||| |||||| ||||
Db      36 ATAATGTTCCTTATGC 21


RESULT 13
AZ694137/c
LOCUS       AZ694137                  78 bp    DNA     linear   GSS 18-DEC-2000
DEFINITION  AST-2HBG1071 Genetrap HL-60 Human Promyelocytic Leukemia Library
            Homo sapiens genomic 5', DNA sequence.
ACCESSION   AZ694137
VERSION     AZ694137.1  GI:11879072
KEYWORDS    GSS.
SOURCE      human.
  ORGANISM  Homo sapiens
            Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
            Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
REFERENCE   1  (bases 1 to 78)
  AUTHORS   Henkel,G., Liyanage,M., Pratt,E., Huang,D., Riley,M., Bernardino,A.
            , Durick,K. and Pollok,B.
  TITLE     Exon-trap tags from a HL-60 GenomeScreen(TM) Library
  JOURNAL   Unpublished (2000)
COMMENT     Contact: Greg Henkel
            Gene Expression
            Aurora Biosciences Corp.
            11010 Torreyana Road, San Diego, CA 92121, USA
            Tel: 8584048436
            Fax: 8584046719
            Email: henkelg@aurorabio.com
            Pools of cells were isolated from a GenomeScreen(TM) library. The
            library of cells was generated by retroviral integration of a gene
            tagging element consisting of: 1) A promoterless beta-lactamase
```

proceeded by a splice acceptor as a reporter for gene expression; 2) A promoter driving neomycin resistance followed by a splice donor to trap downstream exons. 3' RACE from neomycin gene was performed using total RNA from isolated pools. Output was shotgun cloned in pAmp-1 and used to transform DH5-alpha competent bacteria. 5' ends of reported sequences were immediately preceded by splice donor from the trapping construct.
Class: exon-trapped.

```
FEATURES             Location/Qualifiers
     source          1. .78
                     /organism="Homo sapiens"
                     /db_xref="taxon:9606"
                     /clone_lib="Genetrap HL-60 Human Promyelocytic Leukemia
                     Library"
                     /tissue_type="acute promyelocytic leukemia"
                     /cell_type="promyeloblast"
                     /cell_line="HL-60"
                     /note="Organ: peripheral blood; Vector: pAmp-1; 3' RACE of
                     total RNA from genetrap pools; shotgun clone in pAmp-1 and
                     used to transform DH5-alpha competent bacteria."
BASE COUNT       29 a     14 c     18 g     16 t      1 others
ORIGIN

  Query Match             64.0%;  Score 12.8;  DB 17;  Length 78;
  Best Local Similarity   87.5%;  Pred. No. 4.7e+04;
  Matches   14;  Conservative    0;  Mismatches    2;  Indels    0;  Gaps    0;

Qy       5 TAACGTTCCTGATGCT 20
           || | ||||||||||
Db      21 TACCATTCCTGATGCT 6


RESULT 14
B38935
LOCUS       B38935                    89 bp    DNA     linear   GSS 18-OCT-1997
DEFINITION  HS-1048-B2-A02-MF.abi CIT Human Genomic Sperm Library C Homo
            sapiens genomic clone Plate=CT 831 Col=4 Row=B, DNA sequence.
ACCESSION   B38935
VERSION     B38935.1  GI:2543187
KEYWORDS    GSS.
SOURCE      human.
  ORGANISM  Homo sapiens
            Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
            Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
REFERENCE   1  (bases 1 to 89)
  AUTHORS   Mahairas,G.G., Zackrone,K.D., Smith,T., Tipton,S., Schmidt,S.,
            Traicoff,R., Abajian,C., Blanchard,A., West,A. and Hood,L.E.
  TITLE     Construction of a Characterized Clone Resource for Genomic
            Sequencing: Generation and Preliminary Analysis of 20,000 Sequence
            Tagged Connectors
  JOURNAL   Unpublished (1997)
COMMENT     Contact: Mahairas GG, Zackrone KD, Hood L
            University of Washington
            Seattle, WA 98195, USA
            Tel: (206) 616-8744
            Fax: (206) 685-7301
            Email: kzackron@u.washington.edu
            Sequence Tagged Connector
            Plate: CT 831  row: B  column: 4
            Class: BAC ends
            High quality sequence stop: 89.
FEATURES             Location/Qualifiers
     source          1. .89
                     /organism="Homo sapiens"
                     /db_xref="taxon:9606"
                     /clone="Plate=CT 831 Col=4 Row=B"
                     /clone_lib="CIT Human Genomic Sperm Library C"
                     /sex="M"
                     /note="Organ: sperm; Vector: pBeloBAC11; BAC Clones in
                     E-Coli DH10B"
BASE COUNT       19 a     14 c     25 g     31 t
ORIGIN

  Query Match             64.0%;  Score 12.8;  DB 17;  Length 89;
  Best Local Similarity   87.5%;  Pred. No. 4.9e+04;
  Matches   14;  Conservative    0;  Mismatches    2;  Indels    0;  Gaps    0;

Qy       5 TAACGTTCCTGATGCT 20
           ||| ||| ||||||||
Db       8 TAAAGTTGCTGATGCT 23


RESULT 15
AZ957967/c
LOCUS       AZ957967                  94 bp    DNA     linear   GSS 27-APR-2001
DEFINITION  2M0225I02F Mouse 10kb plasmid UUGC2M library Mus musculus genomic
            clone UUGC2M0225I02 F, DNA sequence.
ACCESSION   AZ957967
VERSION     AZ957967.1  GI:13829194
KEYWORDS    GSS.
SOURCE      house mouse.
  ORGANISM  Mus musculus
            Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
            Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
REFERENCE   1  (bases 1 to 94)
  AUTHORS   Dunn,D., Aoyagi,A., Barber,M., Beacorn,T., Duval,B., Hamil,C.,
            Islam,H., Longacre,S., Mahmoud,M., Meenen,E., Pedersen,T., Reilly
            ,M., Rose,M., Rose,R., Stokes,R., Tingey,A., von Niederhausern,A.
            and Wright,D.,Weiss,R.
  TITLE     Mouse whole genome scaffolding with paired end reads from 10kb
            plasmid inserts
  JOURNAL   Unpublished (2000)
COMMENT     Contact: Robert B. Weiss
            University of Utah Genome Center
            University of Utah
            Rm. 308, Biomedical Polymers Research Bldg., 20 S. 2030 E., SLC, UT
            84112, USA
            Tel: 801 585 5606
            Fax: 801 585 7177
            Email: ddunn@genetics.utah.edu
            Insert Length: 10000   Std Error: 0.00
            Plate: 0225  row: I  column: 02
            Seq primer: CGTTGTAAAACGACGGCCAGT
            Class: plasmid ends
            High quality sequence stop: 94.
FEATURES             Location/Qualifiers
     source          1. .94
                     /organism="Mus musculus"
                     /strain="C57BL/6J"
                     /db_xref="taxon:10090"
                     /clone="UUGC2M0225I02"
                     /clone_lib="Mouse 10kb plasmid UUGC2M library"
                     /sex="Female"
                     /lab_host="E. coli strain XL10-Gold, T1-resistant, F-"
                     /note="Vector: PWD42nv; Purified genomic DNA from M.
                     musculus C57BL/6J (female) was obtained  from the Jackson
                     Laboratory Mouse DNA Resource
                     (http://www.jax.org/resources/documents/dnares/). The DNA
                     was hydrodynamically sheared by repeated passage through a
                     0.005 inch orifice at constant velocity. The sheared DNA
                     was blunt end-repaired with T4 DNA polymerase and T4
                     polynucleotide kinase. Adaptor oligonucleotides were
                     ligated to the blunt ends in high  molar excess. The
                     adaptored DNA was purified and size-selected for a 9.5 to
                     10.5 kb range using preparative agarose gel
                     electrophoresis. Vector DNA was prepared from a derivative
                     of pWD42 (gi|4732114|gb|AF129072.1), a copy-number
                     inducible derivative of plasmid R1. The vector was ligated
                     with adaptors complementary to the insert adaptors and
                     purified. The sheared, adaptored mouse DNA was annealed to
                     adaptored vector DNA, and transformed into
                     chemically-competent E. coli XL10-Gold (Stratagene) cells
                     and selected for ampicillin resistance."
BASE COUNT       32 a     26 c     16 g     20 t
ORIGIN
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Query Match 64.0%; Score 12.8; DB 17; Length 94;
Best Local Similarity 87.5%; Pred. No. 4.9e+04;
Matches 14; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

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Qy       2 CCATAACGTTCCTGAT 17
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Db      81 CCAGAAAGTTCCTGAT 66
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Search completed: March 2, 2003, 00:41:09
Job time : 1062.75 secs

GenCore version 5.1.4_p5_4578


OM nucleic - nucleic search, using sw model

Run on: March 1, 2003, 21:36:01 ; Search time 358.25 Seconds
(without alignments)
1624.720 Million cell updates/sec

Title: US-09-818-918-45
Perfect score: 20
Sequence: 1 tccataacgttcctgatgct 20

Scoring table: IDENTITY_NUC
Gapop 10.0 , Gapext 1.0

Searched: 2054640 seqs, 14551402878 residues

Total number of hits satisfying chosen parameters: 995600

Minimum DB seq length: 0
Maximum DB seq length: 100

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : GenEmbl:*
1: gb_ba:*
2: gb_htg:*
3: gb_in:*
4: gb_om:*
5: gb_ov:*
6: gb_pat:*
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33: em_htg_mus:*
34: em_htg_pln:*
35: em_htg_rod:*
36: em_htg_mam:*
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41: em_htgo_other:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

| Result No. | Score | % Query Match | Length | DB | ID | Description |
|---|---|---|---|---|---|---|
| 1 | 20 | 100.0 | 20 | 6 | AR140444 | AR140444 Sequence |
| 2 | 20 | 100.0 | 20 | 6 | AR140486 | AR140486 Sequence |
| 3 | 20 | 100.0 | 20 | 6 | AR146337 | AR146337 Sequence |
| 4 | 20 | 100.0 | 20 | 6 | AR154674 | AR154674 Sequence |
| 5 | 20 | 100.0 | 20 | 6 | AX104585 | AX104585 Sequence |
| 6 | 20 | 100.0 | 20 | 6 | AX105178 | AX105178 Sequence |
| 7 | 20 | 100.0 | 20 | 6 | AX351748 | AX351748 Sequence |
| 8 | 20 | 100.0 | 20 | 6 | AX351814 | AX351814 Sequence |
| 9 | 20 | 100.0 | 20 | 6 | AX351837 | AX351837 Sequence |
| 10 | 20 | 100.0 | 20 | 6 | AX351865 | AX351865 Sequence |
| 11 | 20 | 100.0 | 20 | 6 | AX351886 | AX351886 Sequence |
| 12 | 20 | 100.0 | 20 | 6 | AX351911 | AX351911 Sequence |
| 13 | 20 | 100.0 | 20 | 6 | AX355517 | AX355517 Sequence |
| 14 | 20 | 100.0 | 20 | 6 | AX455600 | AX455600 Sequence |
| 15 | 20 | 100.0 | 20 | 6 | AX465343 | AX465343 Sequence |
| 16 | 20 | 100.0 | 20 | 6 | BD009051 | BD009051 Immunosti |
| 17 | 20 | 100.0 | 24 | 6 | AX351932 | AX351932 Sequence |
| 18 | 20 | 100.0 | 26 | 6 | AX351755 | AX351755 Sequence |
| 19 | 20 | 100.0 | 28 | 6 | AX351953 | AX351953 Sequence |
| 20 | 18.4 | 92.0 | 20 | 6 | A89782 | A89782 Sequence 4 |
| 21 | 18.4 | 92.0 | 20 | 6 | A89783 | A89783 Sequence 5 |
| 22 | 18.4 | 92.0 | 20 | 6 | A90869 | A90869 Sequence 4 |
| 23 | 18.4 | 92.0 | 20 | 6 | A90870 | A90870 Sequence 5 |
| 24 | 18.4 | 92.0 | 20 | 6 | A93512 | A93512 Sequence 5 |
| 25 | 18.4 | 92.0 | 20 | 6 | A93521 | A93521 Sequence 14 |
| 26 | 18.4 | 92.0 | 20 | 6 | AR078394 | AR078394 Sequence |
| 27 | 18.4 | 92.0 | 20 | 6 | AR096710 | AR096710 Sequence |
| 28 | 18.4 | 92.0 | 20 | 6 | AR135054 | AR135054 Sequence |
| 29 | 18.4 | 92.0 | 20 | 6 | AR140448 | AR140448 Sequence |
| 30 | 18.4 | 92.0 | 20 | 6 | AR140476 | AR140476 Sequence |
| 31 | 18.4 | 92.0 | 20 | 6 | AR140485 | AR140485 Sequence |
| 32 | 18.4 | 92.0 | 20 | 6 | AR140495 | AR140495 Sequence |
| 33 | 18.4 | 92.0 | 20 | 6 | AR146312 | AR146312 Sequence |
| 34 | 18.4 | 92.0 | 20 | 6 | AR154678 | AR154678 Sequence |
| 35 | 18.4 | 92.0 | 20 | 6 | AR154759 | AR154759 Sequence |
| 36 | 18.4 | 92.0 | 20 | 6 | AR182896 | AR182896 Sequence |
| 37 | 18.4 | 92.0 | 20 | 6 | AR182907 | AR182907 Sequence |
| 38 | 18.4 | 92.0 | 20 | 6 | AX023425 | AX023425 Sequence |
| 39 | 18.4 | 92.0 | 20 | 6 | AX040172 | AX040172 Sequence |
| 40 | 18.4 | 92.0 | 20 | 6 | AX104566 | AX104566 Sequence |
| 41 | 18.4 | 92.0 | 20 | 6 | AX104614 | AX104614 Sequence |
| 42 | 18.4 | 92.0 | 20 | 6 | AX104673 | AX104673 Sequence |
| 43 | 18.4 | 92.0 | 20 | 6 | AX105185 | AX105185 Sequence |
| 44 | 18.4 | 92.0 | 20 | 6 | AX135638 | AX135638 Sequence |
| 45 | 18.4 | 92.0 | 20 | 6 | AX166344 | AX166344 Sequence |

ALIGNMENTS

RESULT 1
AR140444
LOCUS AR140444 20 bp DNA linear PAT 16-JUN-2001
DEFINITION Sequence 3 from patent US 6207646.
ACCESSION AR140444
VERSION AR140444.1 GI:14482940
KEYWORDS .
SOURCE Unknown.
ORGANISM Unknown.
Unclassified.
REFERENCE 1 (bases 1 to 20)
AUTHORS Krieg,A.M., Kline,J., Klinman,D. and Steinberg,A.D.
TITLE Immunostimulatory nucleic acid molecules
JOURNAL Patent: US 6207646-A 3 27-MAR-2001;
FEATURES Location/Qualifiers

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     source          1. .20
                     /organism="unknown"
BASE COUNT        4 a      6 c      3 g      7 t
ORIGIN

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  Best Local Similarity   100.0%;  Pred. No. 2;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATAACGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATAACGTTCCTGATGCT 20


RESULT 2
AR140486
LOCUS       AR140486                 20 bp    DNA     linear   PAT 16-JUN-2001
DEFINITION  Sequence 45 from patent US 6207646.
ACCESSION   AR140486
VERSION     AR140486.1  GI:14482982
KEYWORDS    .
SOURCE      Unknown.
  ORGANISM  Unknown.
            Unclassified.
REFERENCE   1  (bases 1 to 20)
  AUTHORS   Krieg,A.M., Kline,J., Klinman,D. and Steinberg,A.D.
  TITLE     Immunostimulatory nucleic acid molecules
  JOURNAL   Patent: US 6207646-A 45 27-MAR-2001;
FEATURES             Location/Qualifiers
     source          1. .20
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BASE COUNT        4 a      6 c      3 g      7 t
ORIGIN

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  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATAACGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATAACGTTCCTGATGCT 20


RESULT 3
AR146337
LOCUS       AR146337                 20 bp    DNA     linear   PAT 08-AUG-2001
DEFINITION  Sequence 49 from patent US 6218371.
ACCESSION   AR146337
VERSION     AR146337.1  GI:15109526
KEYWORDS    .
SOURCE      Unknown.
  ORGANISM  Unknown.
            Unclassified.
REFERENCE   1  (bases 1 to 20)
  AUTHORS   Krieg,A.M. and Weiner,G.
  TITLE     Methods and products for stimulating the immune system using
            immunotherapeutic oligonucleotides and cytokines
  JOURNAL   Patent: US 6218371-A 49 17-APR-2001;
FEATURES             Location/Qualifiers
     source          1. .20
                     /organism="unknown"
BASE COUNT        4 a      6 c      3 g      7 t
ORIGIN

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  Best Local Similarity   100.0%;  Pred. No. 2;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATAACGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATAACGTTCCTGATGCT 20


RESULT 4
AR154674
LOCUS       AR154674                 20 bp    DNA     linear   PAT 08-AUG-2001
DEFINITION  Sequence 3 from patent US 6239116.
ACCESSION   AR154674
VERSION     AR154674.1  GI:15122727
KEYWORDS    .
SOURCE      Unknown.
  ORGANISM  Unknown.
            Unclassified.
REFERENCE   1  (bases 1 to 20)
  AUTHORS   Krieg,A.M. and Kline,J.N.
  TITLE     Immunostimulatory nucleic acid molecules
  JOURNAL   Patent: US 6239116-A 3 29-MAY-2001;
FEATURES             Location/Qualifiers
     source          1. .20
                     /organism="unknown"
BASE COUNT        4 a      6 c      3 g      7 t
ORIGIN

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  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATAACGTTCCTGATGCT 20
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Db      1 TCCATAACGTTCCTGATGCT 20


RESULT 5
AX104585
LOCUS       AX104585                 20 bp    DNA     linear   PAT 30-APR-2001
DEFINITION  Sequence 777 from Patent WO0122972.
ACCESSION   AX104585
VERSION     AX104585.1  GI:13920782
KEYWORDS    .
SOURCE      synthetic construct.
  ORGANISM  synthetic construct
            artificial sequences.
REFERENCE   1  (bases 1 to 20)
  AUTHORS   Krieg,A.M., Schetter,C. and Vollmer,J.C.
  TITLE     Immunostimulatory nucleic acids
  JOURNAL   Patent: WO 0122972-A 777 05-APR-2001;
            UNIVERSITY OF IOWA RESEARCH FOUNDATION (US) ; Coley Pharmaceutical
            GmbH (DE)
FEATURES             Location/Qualifiers
     source          1. .20
                     /organism="synthetic construct"
                     /db_xref="taxon:32630"
BASE COUNT        4 a      6 c      3 g      7 t
ORIGIN

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  Best Local Similarity   100.0%;  Pred. No. 2;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATAACGTTCCTGATGCT 20
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Db      1 TCCATAACGTTCCTGATGCT 20


RESULT 6
AX105178
LOCUS       AX105178                 20 bp    DNA     linear   PAT 30-APR-2001
DEFINITION  Sequence 77 from Patent WO0122990.
ACCESSION   AX105178
VERSION     AX105178.1  GI:13921328
KEYWORDS    .
SOURCE      synthetic construct.
  ORGANISM  synthetic construct
            artificial sequences.
REFERENCE   1  (bases 1 to 20)
  AUTHORS   Hartmann,G.D., Bratzler,R.L. and Krieg,A.U.
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  TITLE     Methods related to immunostimulatory nucleic acid-induced
            interferon
  JOURNAL   Patent: WO 0122990-A 77 05-APR-2001;
            Coley Pharmaceutical Group, Inc. (US) ; UNIVERSITY OF IOWA RESEARCH
            FOUNDATION (US)
FEATURES             Location/Qualifiers
     source          1. .20
                     /organism="synthetic construct"
                     /db_xref="taxon:32630"
                     /note="Synthetic Oligonucleotide"
BASE COUNT        4 a      6 c      3 g      7 t
ORIGIN

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  Best Local Similarity   100.0%;  Pred. No. 2;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATAACGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATAACGTTCCTGATGCT 20


RESULT 7
AX351748
LOCUS       AX351748                 20 bp    DNA     linear   PAT 06-FEB-2002
DEFINITION  Sequence 44 from Patent WO0193902.
ACCESSION   AX351748
VERSION     AX351748.1  GI:18617031
KEYWORDS    .
SOURCE      synthetic construct.
  ORGANISM  synthetic construct
            artificial sequences.
REFERENCE   1
  AUTHORS   Mond,J.J., Flora,M. and Klinman,D.M.
  TITLE     Immunostimulatory rna/dna hybrid molecules
  JOURNAL   Patent: WO 0193902-A 44 13-DEC-2001;
            Biosynexus Incorporated (US)
FEATURES             Location/Qualifiers
     source          1. .20
                     /organism="synthetic construct"
                     /db_xref="taxon:32630"
                     /note="Synthetic HDR"
BASE COUNT        4 a      6 c      3 g      7 t
ORIGIN

  Query Match             100.0%;  Score 20;  DB 6;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 2;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATAACGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATAACGTTCCTGATGCT 20


RESULT 8
AX351814
LOCUS       AX351814                 20 bp    DNA     linear   PAT 06-FEB-2002
DEFINITION  Sequence 110 from Patent WO0193902.
ACCESSION   AX351814
VERSION     AX351814.1  GI:18617097
KEYWORDS    .
SOURCE      synthetic construct.
  ORGANISM  synthetic construct
            artificial sequences.
REFERENCE   1
  AUTHORS   Mond,J.J., Flora,M. and Klinman,D.M.
  TITLE     Immunostimulatory rna/dna hybrid molecules
  JOURNAL   Patent: WO 0193902-A 110 13-DEC-2001;
            Biosynexus Incorporated (US)
FEATURES             Location/Qualifiers
     source          1. .20
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                     /note="Synthetic HDR"
BASE COUNT        4 a      6 c      3 g      7 t
ORIGIN

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  Best Local Similarity   100.0%;  Pred. No. 2;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATAACGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATAACGTTCCTGATGCT 20


RESULT 9
AX351837
LOCUS       AX351837                 20 bp    DNA     linear   PAT 06-FEB-2002
DEFINITION  Sequence 133 from Patent WO0193902.
ACCESSION   AX351837
VERSION     AX351837.1  GI:18617120
KEYWORDS    .
SOURCE      synthetic construct.
  ORGANISM  synthetic construct
            artificial sequences.
REFERENCE   1
  AUTHORS   Mond,J.J., Flora,M. and Klinman,D.M.
  TITLE     Immunostimulatory rna/dna hybrid molecules
  JOURNAL   Patent: WO 0193902-A 133 13-DEC-2001;
            Biosynexus Incorporated (US)
FEATURES             Location/Qualifiers
     source          1. .20
                     /organism="synthetic construct"
                     /db_xref="taxon:32630"
                     /note="Synthetic HDR"
BASE COUNT        4 a      6 c      3 g      7 t
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  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATAACGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATAACGTTCCTGATGCT 20


RESULT 10
AX351865
LOCUS       AX351865                 20 bp    DNA     linear   PAT 06-FEB-2002
DEFINITION  Sequence 161 from Patent WO0193902.
ACCESSION   AX351865
VERSION     AX351865.1  GI:18617148
KEYWORDS    .
SOURCE      synthetic construct.
  ORGANISM  synthetic construct
            artificial sequences.
REFERENCE   1
  AUTHORS   Mond,J.J., Flora,M. and Klinman,D.M.
  TITLE     Immunostimulatory rna/dna hybrid molecules
  JOURNAL   Patent: WO 0193902-A 161 13-DEC-2001;
            Biosynexus Incorporated (US)
FEATURES             Location/Qualifiers
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BASE COUNT        4 a      6 c      3 g      7 t
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  Query Match             100.0%;  Score 20;  DB 6;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 2;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATAACGTTCCTGATGCT 20
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```
          ||||||||||||||||||||
Db      1 TCCATAACGTTCCTGATGCT 20


RESULT 11
AX351886
LOCUS       AX351886                  20 bp    DNA     linear   PAT 06-FEB-2002
DEFINITION  Sequence 182 from Patent WO0193902.
ACCESSION   AX351886
VERSION     AX351886.1  GI:18617169
KEYWORDS    .
SOURCE      synthetic construct.
  ORGANISM  synthetic construct
            artificial sequences.
REFERENCE   1
  AUTHORS   Mond,J.J., Flora,M. and Klinman,D.M.
  TITLE     Immunostimulatory rna/dna hybrid molecules
  JOURNAL   Patent: WO 0193902-A 182 13-DEC-2001;
            Biosynexus Incorporated (US)
FEATURES             Location/Qualifiers
     source          1. .20
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  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATAACGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATAACGTTCCTGATGCT 20


RESULT 12
AX351911
LOCUS       AX351911                  20 bp    DNA     linear   PAT 06-FEB-2002
DEFINITION  Sequence 207 from Patent WO0193902.
ACCESSION   AX351911
VERSION     AX351911.1  GI:18617194
KEYWORDS    .
SOURCE      synthetic construct.
  ORGANISM  synthetic construct
            artificial sequences.
REFERENCE   1
  AUTHORS   Mond,J.J., Flora,M. and Klinman,D.M.
  TITLE     Immunostimulatory rna/dna hybrid molecules
  JOURNAL   Patent: WO 0193902-A 207 13-DEC-2001;
            Biosynexus Incorporated (US)
FEATURES             Location/Qualifiers
     source          1. .20
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                     /note="Synthetic HDR"
BASE COUNT        4 a      6 c      3 g      7 t
ORIGIN

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  Best Local Similarity   100.0%;  Pred. No. 2;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATAACGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATAACGTTCCTGATGCT 20


RESULT 13
AX355517
LOCUS       AX355517                  20 bp    DNA     linear   PAT 06-FEB-2002
DEFINITION  Sequence 545 from Patent WO0197843.
ACCESSION   AX355517
VERSION     AX355517.1  GI:18620185
KEYWORDS    .
SOURCE      synthetic construct.
  ORGANISM  synthetic construct
            artificial sequences.
REFERENCE   1
  AUTHORS   Weiner,G. and Hartmann,G.
  TITLE     Methods for enhancing antibody-induced cell lysis and treating
            cancer
  JOURNAL   Patent: WO 0197843-A 545 27-DEC-2001;
            UNIVERSITY OF IOWA RESEARCH FOUNDATION (US)
FEATURES             Location/Qualifiers
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                     /organism="synthetic construct"
                     /db_xref="taxon:32630"
                     /note="Synthetic oligonucleotide-phosphodiester backbone"
BASE COUNT        4 a      6 c      3 g      7 t
ORIGIN

  Query Match             100.0%;  Score 20;  DB 6;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 2;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATAACGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATAACGTTCCTGATGCT 20


RESULT 14
AX455600
LOCUS       AX455600                  20 bp    DNA     linear   PAT 06-JUL-2002
DEFINITION  Sequence 77 from Patent WO0222809.
ACCESSION   AX455600
VERSION     AX455600.1  GI:21714668
KEYWORDS    .
SOURCE      synthetic construct.
  ORGANISM  synthetic construct
            artificial sequences.
REFERENCE   1
  AUTHORS   Bauer,S., Lipford,G. and Wagner,H.
  TITLE     Process for high throughput screening of cpg-based
            immuno-agonist/antagonist
  JOURNAL   Patent: WO 0222809-A 77 21-MAR-2002;
            Coley Pharmaceutical GmbH (DE)
FEATURES             Location/Qualifiers
     source          1. .20
                     /organism="synthetic construct"
                     /db_xref="taxon:32630"
                     /note="Synthetic oligonucleotide"
BASE COUNT        4 a      6 c      3 g      7 t
ORIGIN

  Query Match             100.0%;  Score 20;  DB 6;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 2;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATAACGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATAACGTTCCTGATGCT 20


RESULT 15
AX465343
LOCUS       AX465343                  20 bp    DNA     linear   PAT 16-JUL-2002
DEFINITION  Sequence 11 from Patent WO0211761.
ACCESSION   AX465343
VERSION     AX465343.1  GI:21899706
KEYWORDS    .
SOURCE      synthetic construct.
  ORGANISM  synthetic construct
            artificial sequences.
REFERENCE   1
  AUTHORS   Mond,J.J., Prince,G. and Klinman,D.M.
```

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  TITLE     Vaccine against RSV
  JOURNAL   Patent: WO 0211761-A 11 14-FEB-2002;
            HENRY M. JACKSON FOUNDATION FOR THE ADVANCEMENT OF MILITARY
            MEDICINE (US)
FEATURES             Location/Qualifiers
     source          1. .20
                     /organism="synthetic construct"
                     /db_xref="taxon:32630"
                     /note="Synthetic oligonucleotide"
BASE COUNT        4 a      6 c      3 g      7 t
ORIGIN

  Query Match             100.0%;  Score 20;  DB 6;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 2;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       1 TCCATAACGTTCCTGATGCT 20
           ||||||||||||||||||||
Db       1 TCCATAACGTTCCTGATGCT 20


Search completed: March  1, 2003, 23:30:03
Job time : 358.25 secs
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GenCore version 5.1.4_p5_4578


OM nucleic - nucleic search, using sw model

Run on: March 1, 2003, 22:53:06 ; Search time 41 Seconds
(without alignments)
149.598 Million cell updates/sec

Title: US-09-818-918-45
Perfect score: 20
Sequence: 1 tccataacgttcctgatgct 20

Scoring table: IDENTITY_NUC
Gapop 10.0 , Gapext 1.0

Searched: 441362 seqs, 153338381 residues

Total number of hits satisfying chosen parameters: 687286

Minimum DB seq length: 0
Maximum DB seq length: 100

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : Issued_Patents_NA:*
1: /cgn2_6/ptodata/1/ina/5A_COMB.seq:*
2: /cgn2_6/ptodata/1/ina/5B_COMB.seq:*
3: /cgn2_6/ptodata/1/ina/6A_COMB.seq:*
4: /cgn2_6/ptodata/1/ina/6B_COMB.seq:*
5: /cgn2_6/ptodata/1/ina/PCTUS_COMB.seq:*
6: /cgn2_6/ptodata/1/ina/backfiles1.seq:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

| Result No. | Score | % Query Match | Length | DB | ID | Description |
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| 2 | 20 | 100.0 | 20 | 4 | US-08-738-652-45 | Sequence 45, Appl |
| 3 | 20 | 100.0 | 20 | 4 | US-09-286-098-49 | Sequence 49, Appl |
| 4 | 20 | 100.0 | 20 | 4 | US-08-960-774-3 | Sequence 3, Appli |
| 5 | 20 | 100.0 | 20 | 4 | US-09-325-193A-43 | Sequence 43, Appl |
| 6 | 20 | 100.0 | 20 | 4 | US-09-191-170-44 | Sequence 44, Appl |
| 7 | 18.4 | 92.0 | 20 | 2 | US-09-133-774-11 | Sequence 11, Appl |
| 8 | 18.4 | 92.0 | 20 | 3 | US-08-386-063-25 | Sequence 25, Appl |
| 9 | 18.4 | 92.0 | 20 | 3 | US-09-303-862-11 | Sequence 11, Appl |
| 10 | 18.4 | 92.0 | 20 | 4 | US-08-386-063-25 | Sequence 25, Appl |
| 11 | 18.4 | 92.0 | 20 | 4 | US-08-738-652-7 | Sequence 7, Appli |
| 12 | 18.4 | 92.0 | 20 | 4 | US-08-738-652-35 | Sequence 35, Appl |
| 13 | 18.4 | 92.0 | 20 | 4 | US-08-738-652-44 | Sequence 44, Appl |
| 14 | 18.4 | 92.0 | 20 | 4 | US-08-738-652-54 | Sequence 54, Appl |
| 15 | 18.4 | 92.0 | 20 | 4 | US-09-286-098-24 | Sequence 24, Appl |
| 16 | 18.4 | 92.0 | 20 | 4 | US-08-960-774-7 | Sequence 7, Appli |
| 17 | 18.4 | 92.0 | 20 | 4 | US-08-960-774-88 | Sequence 88, Appl |
| 18 | 18.4 | 92.0 | 20 | 4 | US-09-082-649B-68 | Sequence 68, Appl |
| 19 | 18.4 | 92.0 | 20 | 4 | US-09-082-649B-79 | Sequence 79, Appl |
| 20 | 18.4 | 92.0 | 20 | 4 | US-09-325-193A-19 | Sequence 19, Appl |
| 21 | 18.4 | 92.0 | 20 | 4 | US-09-191-170-24 | Sequence 24, Appl |
| 22 | 18.4 | 92.0 | 20 | 4 | US-09-171-425-5 | Sequence 5, Appli |
| 23 | 18.4 | 92.0 | 20 | 4 | US-09-171-425-14 | Sequence 14, Appl |
| 24 | 18.4 | 92.0 | 29 | 4 | US-08-848-229-2 | Sequence 2, Appli |
| 25 | 16.8 | 84.0 | 20 | 4 | US-08-738-652-9 | Sequence 9, Appli |
| 26 | 16.8 | 84.0 | 20 | 4 | US-08-738-652-40 | Sequence 40, Appl |
| 27 | 16.8 | 84.0 | 20 | 4 | US-08-738-652-43 | Sequence 43, Appl |
| 28 | 16.8 | 84.0 | 20 | 4 | US-08-738-652-46 | Sequence 46, Appl |
| 29 | 16.8 | 84.0 | 20 | 4 | US-08-738-652-47 | Sequence 47, Appl |
| 30 | 16.8 | 84.0 | 20 | 4 | US-08-738-652-53 | Sequence 53, Appl |
| 31 | 16.8 | 84.0 | 20 | 4 | US-09-030-701-5 | Sequence 5, Appli |
| 32 | 16.8 | 84.0 | 20 | 4 | US-09-286-098-45 | Sequence 45, Appl |
| 33 | 16.8 | 84.0 | 20 | 4 | US-09-286-098-48 | Sequence 48, Appl |
| 34 | 16.8 | 84.0 | 20 | 4 | US-09-286-098-50 | Sequence 50, Appl |
| 35 | 16.8 | 84.0 | 20 | 4 | US-09-286-098-51 | Sequence 51, Appl |
| 36 | 16.8 | 84.0 | 20 | 4 | US-09-286-098-56 | Sequence 56, Appl |
| 37 | 16.8 | 84.0 | 20 | 4 | US-09-286-098-57 | Sequence 57, Appl |
| 38 | 16.8 | 84.0 | 20 | 4 | US-08-960-774-9 | Sequence 9, Appli |
| 39 | 16.8 | 84.0 | 20 | 4 | US-08-960-774-35 | Sequence 35, Appl |
| 40 | 16.8 | 84.0 | 20 | 4 | US-08-960-774-38 | Sequence 38, Appl |
| 41 | 16.8 | 84.0 | 20 | 4 | US-08-960-774-39 | Sequence 39, Appl |
| 42 | 16.8 | 84.0 | 20 | 4 | US-08-960-774-40 | Sequence 40, Appl |
| 43 | 16.8 | 84.0 | 20 | 4 | US-08-960-774-87 | Sequence 87, Appl |
| 44 | 16.8 | 84.0 | 20 | 4 | US-08-960-774-89 | Sequence 89, Appl |
| 45 | 16.8 | 84.0 | 20 | 4 | US-09-082-649B-71 | Sequence 71, Appl |

ALIGNMENTS

RESULT 1
US-08-738-652-3
; Sequence 3, Application US/08738652B
; Patent No. 6207646
; GENERAL INFORMATION:
; APPLICANT: Krieg, Arthur M.
; TITLE OF INVENTION: Immunostimulatory Nucleic Acid Molecules
; FILE REFERENCE: C1039/7004 HCL
; CURRENT APPLICATION NUMBER: US/08/738,652B
; CURRENT FILING DATE: 1996-10-30
; EARLIER APPLICATION NUMBER: US 08/276,358
; EARLIER FILING DATE: 1994-07-15
; EARLIER APPLICATION NUMBER: US 08/386,063
; EARLIER FILING DATE: 1995-02-07
; NUMBER OF SEQ ID NOS: 55
; SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 3
; LENGTH: 20
; TYPE: DNA
; ORGANISM: Artificial Sequence
; FEATURE:
; OTHER INFORMATION: Synthetic oligonucleotide
US-08-738-652-3

Query Match 100.0%; Score 20; DB 4; Length 20;
Best Local Similarity 100.0%; Pred. No. 0.069;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 TCCATAACGTTCCTGATGCT 20
||||||||||||||||||||
Db 1 TCCATAACGTTCCTGATGCT 20

RESULT 2
US-08-738-652-45
; Sequence 45, Application US/08738652B
; Patent No. 6207646
; GENERAL INFORMATION:
; APPLICANT: Krieg, Arthur M.
; TITLE OF INVENTION: Immunostimulatory Nucleic Acid Molecules
; FILE REFERENCE: C1039/7004 HCL
; CURRENT APPLICATION NUMBER: US/08/738,652B
; CURRENT FILING DATE: 1996-10-30
; EARLIER APPLICATION NUMBER: US 08/276,358
; EARLIER FILING DATE: 1994-07-15
; EARLIER APPLICATION NUMBER: US 08/386,063
; EARLIER FILING DATE: 1995-02-07
; NUMBER OF SEQ ID NOS: 55
; SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 45

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;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic oligonucleotide
US-08-738-652-45

  Query Match             100.0%;  Score 20;  DB 4;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 0.069;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATAACGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATAACGTTCCTGATGCT 20


RESULT 3
US-09-286-098-49
; Sequence 49, Application US/09286098
; Patent No. 6218371
; GENERAL INFORMATION:
;  APPLICANT: Krieg, Arthur M.
;  APPLICANT: Weiner, George
;  TITLE OF INVENTION: Methods and Products for Stimulating the
;  TITLE OF INVENTION: Immune System Using Immunotherapeutic Oligonucleotides and
;  TITLE OF INVENTION: Cytokines
;  FILE REFERENCE: C1039/7026/HCL
;  CURRENT APPLICATION NUMBER: US/09/286,098
;  CURRENT FILING DATE: 1999-04-02
;  EARLIER APPLICATION NUMBER: US 60/080,729
;  EARLIER FILING DATE: 1998-04-03
;  NUMBER OF SEQ ID NOS: 105
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 49
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic Sequence
US-09-286-098-49

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  Best Local Similarity   100.0%;  Pred. No. 0.069;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATAACGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATAACGTTCCTGATGCT 20


RESULT 4
US-08-960-774-3
; Sequence 3, Application US/08960774
; Patent No. 6239116
;  GENERAL INFORMATION:
;    APPLICANT:  Krieg et al.,
;    TITLE OF INVENTION:  IMMUNOSTIMULATORY NUCLEIC ACID MOLECULES
;    NUMBER OF SEQUENCES:  111
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Fish & Richardson P.C.
;      STREET:  4225 Executive Square, Suite 1400
;      CITY:  La Jolla
;      STATE:  CA
;      COUNTRY:  USA
;      ZIP:  92037
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  ASCII text
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/960,774
;      FILING DATE:  30-October-1997
;      CLASSIFICATION:  514
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  U.S. Serial No. 6239116  08/738,652
;      FILING DATE:  October 30, 1996
;      CLASSIFICATION:  514
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Haile, Lisa A.
;      REGISTRATION NUMBER:  38,347
;      REFERENCE/DOCKET NUMBER:  08918/012001
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  619/678-5070
;      TELEFAX:  619/678-5099
;  INFORMATION FOR SEQ ID NO:  3:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  20 base pairs
;      TYPE:  nucleic acid
;      STRANDEDNESS:  single
;      TOPOLOGY:  linear
;    MOLECULE TYPE:  cDNA
US-08-960-774-3

  Query Match             100.0%;  Score 20;  DB 4;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 0.069;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATAACGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATAACGTTCCTGATGCT 20


RESULT 5
US-09-325-193A-43
; Sequence 43, Application US/09325193A
; Patent No. 6406705
; GENERAL INFORMATION:
;  APPLICANT:  Davis, Heather L.
;  APPLICANT:  Schorr, Joachim
;  APPLICANT:  Krieg, Arthur M.
;  TITLE OF INVENTION:  Use of Nucleic Acids Containing
;  TITLE OF INVENTION:  Unmethylated CpG Dinucleotide as an Adjuvant
;  FILE REFERENCE:  C1039/7025/HCL
;  CURRENT APPLICATION NUMBER: US/09/325,193A
;  CURRENT FILING DATE:  1999-06-03
;  PRIOR APPLICATION NUMBER:  US 09/154,614
;  PRIOR FILING DATE:  1998-09-16
;  PRIOR APPLICATION NUMBER:  PCT/US98/04703
;  PRIOR FILING DATE:  1998-03-10
;  PRIOR APPLICATION NUMBER:  US 60/040,376
;  PRIOR FILING DATE:  1997-03-10
;  NUMBER OF SEQ ID NOS:  98
;  SOFTWARE:  FastSEQ for Windows Version 3.0
; SEQ ID NO 43
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic Oligonucleotide
US-09-325-193A-43

  Query Match             100.0%;  Score 20;  DB 4;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 0.069;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATAACGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATAACGTTCCTGATGCT 20


RESULT 6
US-09-191-170-44
; Sequence 44, Application US/09191170
; Patent No. 6429199
; GENERAL INFORMATION:
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;  APPLICANT: Krieg, Arthur M.
;  APPLICANT: Hartmann, Gunther
;  TITLE OF INVENTION: Immunostimulatory Nucleic Acid Molecules
;  TITLE OF INVENTION: for Activating Dendritic Cells
;  FILE REFERENCE: C1039/7017
;  CURRENT APPLICATION NUMBER: US/09/191,170
;  CURRENT FILING DATE: 1998-11-13
;  EARLIER APPLICATION NUMBER: US 08/960,774
;  EARLIER FILING DATE: 1997-10-30
;  EARLIER APPLICATION NUMBER: US 08/738,652
;  EARLIER FILING DATE: 1996-10-30
;  EARLIER APPLICATION NUMBER: US 08/386,063
;  EARLIER FILING DATE: 1995-02-07
;  EARLIER APPLICATION NUMBER: US 08/276,358
;  EARLIER FILING DATE: 1994-07-15
;  NUMBER OF SEQ ID NOS: 99
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 44
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: synthetic oligonucleotide
US-09-191-170-44

  Query Match           100.0%;  Score 20;  DB 4;  Length 20;
  Best Local Similarity  100.0%;  Pred. No. 0.069;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATAACGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATAACGTTCCTGATGCT 20


RESULT 7
US-09-133-774-11
; Sequence 11, Application US/09133774B
; Patent No. 5962636
; GENERAL INFORMATION:
;  APPLICANT: Bachmaier, Kurt
;  APPLICANT: Hessel, Andrew J.
;  APPLICANT: Neu M.D., Nikolaus
;  APPLICANT: Penninger, Josef M.
;  TITLE OF INVENTION: No. 5962636el Peptides Capable of Modulating Inflammatory Heart
;  TITLE OF INVENTION: Disease
;  FILE REFERENCE: A-536
;  CURRENT APPLICATION NUMBER: US/09/133,774B
;  CURRENT FILING DATE: 1998-08-12
;  NUMBER OF SEQ ID NOS: 26
;  SOFTWARE: PatentIn Ver. 2.0
; SEQ ID NO 11
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Chlamydia trachomatis
;   FEATURE:
;   OTHER INFORMATION: An oligonucleotide derived from the DNA encoding a
;   OTHER INFORMATION: 60 kDa cysteine rich outer membrane protein from
;   OTHER INFORMATION: Chlamydia trachomatis.
US-09-133-774-11

  Query Match           92.0%;  Score 18.4;  DB 2;  Length 20;
  Best Local Similarity  95.0%;  Pred. No. 0.48;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy      1 TCCATAACGTTCCTGATGCT 20
          ||||| ||||||||||||||
Db      1 TCCATGACGTTCCTGATGCT 20


RESULT 8
US-08-386-063-25
; Sequence 25, Application US/08386063
; Patent No. 6008200
;  GENERAL INFORMATION:
;    APPLICANT:  Arthur M. Krieg, M.D.
;    TITLE OF INVENTION:  IMMUNOMODULATORY OLIGONUCLEOTIDES
;    NUMBER OF SEQUENCES:  27
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  LAHIVE & COCKFIELD
;      STREET:  60 STATE STREET, SUITE 510
;      CITY:  BOSTON
;      STATE:  MASSACHUSETTS
;      COUNTRY:  USA
;      ZIP:  02109-1875
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  ASCII text
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/386,063
;      FILING DATE:
;      CLASSIFICATION:  424
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  ARNOLD, BETH E.
;      REGISTRATION NUMBER:  35,430
;      REFERENCE/DOCKET NUMBER:  UIZ-013CP
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  (617)227-7400
;      TELEFAX:  (617)227-5941
;  INFORMATION FOR SEQ ID NO:  25:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  20 base pairs
;      TYPE:  nucleic acid
;      STRANDEDNESS:  single
;      TOPOLOGY:  linear
;    MOLECULE TYPE:  DNA
US-08-386-063-25

  Query Match           92.0%;  Score 18.4;  DB 3;  Length 20;
  Best Local Similarity  95.0%;  Pred. No. 0.48;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy      1 TCCATAACGTTCCTGATGCT 20
          ||||| ||||||||||||||
Db      1 TCCATGACGTTCCTGATGCT 20


RESULT 9
US-09-303-862-11
; Sequence 11, Application US/09303862
; Patent No. 6034230
; GENERAL INFORMATION:
;  APPLICANT: Bachmaier, Kurt
;  APPLICANT: Hessel, Andrew J.
;  APPLICANT: Neu M.D., Nikolaus
;  APPLICANT: Penninger, Josef M.
;  TITLE OF INVENTION: No. 6034230el Peptides Capable of Modulating Inflammatory Hear
;  TITLE OF INVENTION: Disease
;  FILE REFERENCE: A-536
;  CURRENT APPLICATION NUMBER: US/09/303,862
;  CURRENT FILING DATE: 1999-05-03
;  EARLIER APPLICATION NUMBER: 09/133,774
;  EARLIER FILING DATE: 1998-08-12
;  NUMBER OF SEQ ID NOS: 26
;  SOFTWARE: PatentIn Ver. 2.0
; SEQ ID NO 11
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Chlamydia trachomatis
;   FEATURE:
;   OTHER INFORMATION: An oligonucleotide derived from the DNA encoding a
;   OTHER INFORMATION: 60 kDa cysteine rich outer membrane protein from
;   OTHER INFORMATION: Chlamydia trachomatis.
US-09-303-862-11
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  Query Match            92.0%;  Score 18.4;  DB 3;  Length 20;
  Best Local Similarity  95.0%;  Pred. No. 0.48;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy       1 TCCATAACGTTCCTGATGCT 20
           ||||| ||||||||||||||
Db       1 TCCATGACGTTCCTGATGCT 20


RESULT 10
US-08-386-063-25
; Sequence 25, Application US/08386063
; Patent No. 6194388
;  GENERAL INFORMATION:
;    APPLICANT:  Arthur M. Krieg, M.D.
;    TITLE OF INVENTION:  IMMUNOMODULATORY OLIGONUCLEOTIDES
;    NUMBER OF SEQUENCES:  27
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  LAHIVE & COCKFIELD
;      STREET:  60 STATE STREET, SUITE 510
;      CITY:  BOSTON
;      STATE:  MASSACHUSETTS
;      COUNTRY:  USA
;      ZIP:  02109-1875
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  ASCII text
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/386,063
;      FILING DATE:
;      CLASSIFICATION:
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  ARNOLD, BETH E.
;      REGISTRATION NUMBER:  35,430
;      REFERENCE/DOCKET NUMBER:  UIZ-013CP
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  (617)227-7400
;      TELEFAX:  (617)227-5941
;  INFORMATION FOR SEQ ID NO:  25:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  20 base pairs
;      TYPE:  nucleic acid
;      STRANDEDNESS:  single
;      TOPOLOGY:  linear
;    MOLECULE TYPE:  DNA
US-08-386-063-25

  Query Match            92.0%;  Score 18.4;  DB 4;  Length 20;
  Best Local Similarity  95.0%;  Pred. No. 0.48;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy       1 TCCATAACGTTCCTGATGCT 20
           ||||| ||||||||||||||
Db       1 TCCATGACGTTCCTGATGCT 20


RESULT 11
US-08-738-652-7
; Sequence 7, Application US/08738652B
; Patent No. 6207646
; GENERAL INFORMATION:
;  APPLICANT: Krieg, Arthur M.
;  TITLE OF INVENTION: Immunostimulatory Nucleic Acid Molecules
;  FILE REFERENCE: C1039/7004 HCL
;  CURRENT APPLICATION NUMBER: US/08/738,652B
;  CURRENT FILING DATE: 1996-10-30
;  EARLIER APPLICATION NUMBER: US 08/276,358
;  EARLIER FILING DATE: 1994-07-15
;  EARLIER APPLICATION NUMBER: US 08/386,063
;  EARLIER FILING DATE: 1995-02-07
;  NUMBER OF SEQ ID NOS: 55
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 7
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic oligonucleotide
US-08-738-652-7

  Query Match            92.0%;  Score 18.4;  DB 4;  Length 20;
  Best Local Similarity  95.0%;  Pred. No. 0.48;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy       1 TCCATAACGTTCCTGATGCT 20
           ||||| ||||||||||||||
Db       1 TCCATGACGTTCCTGATGCT 20


RESULT 12
US-08-738-652-35
; Sequence 35, Application US/08738652B
; Patent No. 6207646
; GENERAL INFORMATION:
;  APPLICANT: Krieg, Arthur M.
;  TITLE OF INVENTION: Immunostimulatory Nucleic Acid Molecules
;  FILE REFERENCE: C1039/7004 HCL
;  CURRENT APPLICATION NUMBER: US/08/738,652B
;  CURRENT FILING DATE: 1996-10-30
;  EARLIER APPLICATION NUMBER: US 08/276,358
;  EARLIER FILING DATE: 1994-07-15
;  EARLIER APPLICATION NUMBER: US 08/386,063
;  EARLIER FILING DATE: 1995-02-07
;  NUMBER OF SEQ ID NOS: 55
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 35
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic oligonucleotide
US-08-738-652-35

  Query Match            92.0%;  Score 18.4;  DB 4;  Length 20;
  Best Local Similarity  95.0%;  Pred. No. 0.48;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy       1 TCCATAACGTTCCTGATGCT 20
           ||||| ||||||||||||||
Db       1 TCCATGACGTTCCTGATGCT 20


RESULT 13
US-08-738-652-44
; Sequence 44, Application US/08738652B
; Patent No. 6207646
; GENERAL INFORMATION:
;  APPLICANT: Krieg, Arthur M.
;  TITLE OF INVENTION: Immunostimulatory Nucleic Acid Molecules
;  FILE REFERENCE: C1039/7004 HCL
;  CURRENT APPLICATION NUMBER: US/08/738,652B
;  CURRENT FILING DATE: 1996-10-30
;  EARLIER APPLICATION NUMBER: US 08/276,358
;  EARLIER FILING DATE: 1994-07-15
;  EARLIER APPLICATION NUMBER: US 08/386,063
;  EARLIER FILING DATE: 1995-02-07
;  NUMBER OF SEQ ID NOS: 55
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 44
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic oligonucleotide
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US-08-738-652-44

Query Match 92.0%; Score 18.4; DB 4; Length 20;
Best Local Similarity 95.0%; Pred. No. 0.48;
Matches 19; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

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Qy      1 TCCATAACGTTCCTGATGCT 20
          ||||| ||||||||||||||
Db      1 TCCATGACGTTCCTGATGCT 20
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RESULT 14
US-08-738-652-54
; Sequence 54, Application US/08738652B
; Patent No. 6207646
; GENERAL INFORMATION:
; APPLICANT: Krieg, Arthur M.
; TITLE OF INVENTION: Immunostimulatory Nucleic Acid Molecules
; FILE REFERENCE: C1039/7004 HCL
; CURRENT APPLICATION NUMBER: US/08/738,652B
; CURRENT FILING DATE: 1996-10-30
; EARLIER APPLICATION NUMBER: US 08/276,358
; EARLIER FILING DATE: 1994-07-15
; EARLIER APPLICATION NUMBER: US 08/386,063
; EARLIER FILING DATE: 1995-02-07
; NUMBER OF SEQ ID NOS: 55
; SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 54
; LENGTH: 20
; TYPE: DNA
; ORGANISM: Artificial Sequence
; FEATURE:
; OTHER INFORMATION: Synthetic oligonucleotide
US-08-738-652-54

Query Match 92.0%; Score 18.4; DB 4; Length 20;
Best Local Similarity 95.0%; Pred. No. 0.48;
Matches 19; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

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Qy      1 TCCATAACGTTCCTGATGCT 20
          ||||| ||||||||||||||
Db      1 TCCATGACGTTCCTGATGCT 20
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RESULT 15
US-09-286-098-24
; Sequence 24, Application US/09286098
; Patent No. 6218371
; GENERAL INFORMATION:
; APPLICANT: Krieg, Arthur M.
; APPLICANT: Weiner, George
; TITLE OF INVENTION: Methods and Products for Stimulating the
; TITLE OF INVENTION: Immune System Using Immunotherapeutic Oligonucleotides and
; TITLE OF INVENTION: Cytokines
; FILE REFERENCE: C1039/7026/HCL
; CURRENT APPLICATION NUMBER: US/09/286,098
; CURRENT FILING DATE: 1999-04-02
; EARLIER APPLICATION NUMBER: US 60/080,729
; EARLIER FILING DATE: 1998-04-03
; NUMBER OF SEQ ID NOS: 105
; SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 24
; LENGTH: 20
; TYPE: DNA
; ORGANISM: Artificial Sequence
; FEATURE:
; OTHER INFORMATION: Synthetic Sequence
US-09-286-098-24

Query Match 92.0%; Score 18.4; DB 4; Length 20;
Best Local Similarity 95.0%; Pred. No. 0.48;
Matches 19; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

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Qy      1 TCCATAACGTTCCTGATGCT 20
          ||||| ||||||||||||||
Db      1 TCCATGACGTTCCTGATGCT 20
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Job time : 42 secs

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OM nucleic - nucleic search, using sw model

Run on: March 1, 2003, 22:56:16 ; Search time 43.5 Seconds
(without alignments)
286.721 Million cell updates/sec

Title: US-09-818-918-45
Perfect score: 20
Sequence: 1 tccataacgttcctgatgct 20

Scoring table: IDENTITY_NUC
Gapop 10.0 , Gapext 1.0

Searched: 460893 seqs, 311809382 residues

Total number of hits satisfying chosen parameters: 282390

Minimum DB seq length: 0
Maximum DB seq length: 100

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

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2: /cgn2_6/ptodata/2/pubpna/PCT_NEW_PUB.seq:*
3: /cgn2_6/ptodata/2/pubpna/US06_NEW_PUB.seq:*
4: /cgn2_6/ptodata/2/pubpna/US06_PUBCOMB.seq:*
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6: /cgn2_6/ptodata/2/pubpna/PCTUS_PUBCOMB.seq:*
7: /cgn2_6/ptodata/2/pubpna/US08_NEW_PUB.seq:*
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9: /cgn2_6/ptodata/2/pubpna/US09_NEW_PUB.seq:*
10: /cgn2_6/ptodata/2/pubpna/US09_PUBCOMB.seq:*
11: /cgn2_6/ptodata/2/pubpna/US10_NEW_PUB.seq:*
12: /cgn2_6/ptodata/2/pubpna/US10_PUBCOMB.seq:*
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14: /cgn2_6/ptodata/2/pubpna/US60_PUBCOMB.seq:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

| Result No. | Score | % Query Match | Length | DB | ID | Description |
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| 1 | 20 | 100.0 | 20 | 9 | US-09-800-266A-43 | Sequence 43, Appl |
| 2 | 20 | 100.0 | 20 | 9 | US-09-895-007A-43 | Sequence 43, Appl |
| 3 | 20 | 100.0 | 20 | 9 | US-10-023-909A-43 | Sequence 43, Appl |
| 4 | 20 | 100.0 | 20 | 9 | US-09-920-313-43 | Sequence 43, Appl |
| 5 | 20 | 100.0 | 20 | 9 | US-09-888-326-545 | Sequence 545, App |
| 6 | 20 | 100.0 | 20 | 10 | US-09-824-468-49 | Sequence 49, Appl |
| 7 | 18.4 | 92.0 | 20 | 9 | US-09-800-266A-19 | Sequence 19, Appl |
| 8 | 18.4 | 92.0 | 20 | 9 | US-09-846-091-4 | Sequence 4, Appli |
| 9 | 18.4 | 92.0 | 20 | 9 | US-09-895-007A-19 | Sequence 19, Appl |
| 10 | 18.4 | 92.0 | 20 | 9 | US-10-023-909A-19 | Sequence 19, Appl |
| 11 | 18.4 | 92.0 | 20 | 9 | US-09-920-313-19 | Sequence 19, Appl |
| 12 | 18.4 | 92.0 | 20 | 9 | US-10-205-150-7 | Sequence 7, Appli |
| 13 | 18.4 | 92.0 | 20 | 9 | US-10-011-635A-1 | Sequence 1, Appli |
| 14 | 18.4 | 92.0 | 20 | 9 | US-09-415-142-25 | Sequence 25, Appl |
| 15 | 18.4 | 92.0 | 20 | 9 | US-09-888-326-127 | Sequence 127, App |
| 16 | 18.4 | 92.0 | 20 | 9 | US-09-888-326-566 | Sequence 566, App |
| 17 | 18.4 | 92.0 | 20 | 9 | US-09-888-326-567 | Sequence 567, App |
| 18 | 18.4 | 92.0 | 20 | 10 | US-09-791-500-7 | Sequence 7, Appli |
| 19 | 18.4 | 92.0 | 20 | 10 | US-09-824-468-24 | Sequence 24, Appl |
| 20 | 18.4 | 92.0 | 29 | 9 | US-09-888-326-129 | Sequence 129, App |
| 21 | 17.4 | 87.0 | 19 | 10 | US-09-965-116A-69 | Sequence 69, Appl |
| 22 | 17.4 | 87.0 | 19 | 10 | US-09-965-116A-70 | Sequence 70, Appl |
| 23 | 17.4 | 87.0 | 19 | 10 | US-09-965-116A-71 | Sequence 71, Appl |
| 24 | 17.4 | 87.0 | 20 | 9 | US-09-888-326-572 | Sequence 572, App |
| 25 | 17.4 | 87.0 | 20 | 9 | US-09-888-326-582 | Sequence 582, App |
| 26 | 16.8 | 84.0 | 20 | 9 | US-09-800-266A-38 | Sequence 38, Appl |
| 27 | 16.8 | 84.0 | 20 | 9 | US-09-800-266A-42 | Sequence 42, Appl |
| 28 | 16.8 | 84.0 | 20 | 9 | US-09-800-266A-44 | Sequence 44, Appl |
| 29 | 16.8 | 84.0 | 20 | 9 | US-09-800-266A-45 | Sequence 45, Appl |
| 30 | 16.8 | 84.0 | 20 | 9 | US-09-800-266A-49 | Sequence 49, Appl |
| 31 | 16.8 | 84.0 | 20 | 9 | US-09-895-007A-38 | Sequence 38, Appl |
| 32 | 16.8 | 84.0 | 20 | 9 | US-09-895-007A-42 | Sequence 42, Appl |
| 33 | 16.8 | 84.0 | 20 | 9 | US-09-895-007A-44 | Sequence 44, Appl |
| 34 | 16.8 | 84.0 | 20 | 9 | US-09-895-007A-45 | Sequence 45, Appl |
| 35 | 16.8 | 84.0 | 20 | 9 | US-09-895-007A-49 | Sequence 49, Appl |
| 36 | 16.8 | 84.0 | 20 | 9 | US-10-023-909A-38 | Sequence 38, Appl |
| 37 | 16.8 | 84.0 | 20 | 9 | US-10-023-909A-42 | Sequence 42, Appl |
| 38 | 16.8 | 84.0 | 20 | 9 | US-10-023-909A-44 | Sequence 44, Appl |
| 39 | 16.8 | 84.0 | 20 | 9 | US-10-023-909A-45 | Sequence 45, Appl |
| 40 | 16.8 | 84.0 | 20 | 9 | US-10-023-909A-49 | Sequence 49, Appl |
| 41 | 16.8 | 84.0 | 20 | 9 | US-10-074-956-2 | Sequence 2, Appli |
| 42 | 16.8 | 84.0 | 20 | 9 | US-09-920-313-38 | Sequence 38, Appl |
| 43 | 16.8 | 84.0 | 20 | 9 | US-09-920-313-42 | Sequence 42, Appl |
| 44 | 16.8 | 84.0 | 20 | 9 | US-09-920-313-44 | Sequence 44, Appl |
| 45 | 16.8 | 84.0 | 20 | 9 | US-09-920-313-45 | Sequence 45, Appl |

ALIGNMENTS

RESULT 1
US-09-800-266A-43
; Sequence 43, Application US/09800266A
; Patent No. US20020156033A1
; GENERAL INFORMATION:
; APPLICANT: Bratzler, Robert L.
; APPLICANT: Petersen, Deanna M.
; TITLE OF INVENTION: Immunostimulatory Nucleic Acids and
; TITLE OF INVENTION: Cancer Medicament Combination Therapy for the Treatment of
; TITLE OF INVENTION: Cancer
; FILE REFERENCE: C1037/7017(HCL/MAT)
; CURRENT APPLICATION NUMBER: US/09/800,266A
; CURRENT FILING DATE: 2001-03-05
; PRIOR APPLICATION NUMBER: US 60/187,214
; PRIOR FILING DATE: 2000-03-03
; NUMBER OF SEQ ID NOS: 146
; SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 43
; LENGTH: 20
; TYPE: DNA
; ORGANISM: Artificial Sequence
; FEATURE:
; OTHER INFORMATION: Synthetic Sequence
US-09-800-266A-43

Query Match 100.0%; Score 20; DB 9; Length 20;
Best Local Similarity 100.0%; Pred. No. 0.17;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 TCCATAACGTTCCTGATGCT 20
||||||||||||||||||||
Db 1 TCCATAACGTTCCTGATGCT 20

RESULT 2
US-09-895-007A-43
; Sequence 43, Application US/09895007A
; Patent No. US20020165178A1
; GENERAL INFORMATION:
; APPLICANT: Schetter, Christian
; APPLICANT: Bratzler, Robert L.
; APPLICANT: Petersen, Deanna M.

; TITLE OF INVENTION: IMMUNOSTIMULATORY NUCLEIC ACIDS FOR THE
; TITLE OF INVENTION: TREATMENT OF ANEMIA, THROMBOCYTOPENIA, AND NEUTROPENIA
; FILE REFERENCE: C1041/7014 (AWS)
; CURRENT APPLICATION NUMBER: US/09/895,007A
; CURRENT FILING DATE: 2001-06-28
; PRIOR APPLICATION NUMBER: US 60/214,368
; PRIOR FILING DATE: 2000-06-28
; NUMBER OF SEQ ID NOS: 133
; SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 43
; LENGTH: 20
; TYPE: DNA
; ORGANISM: Artificial Sequence
; FEATURE:
; OTHER INFORMATION: Synthetic oligonucleotide
US-09-895-007A-43

Query Match 100.0%; Score 20; DB 9; Length 20;
Best Local Similarity 100.0%; Pred. No. 0.17;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 TCCATAACGTTCCTGATGCT 20
||||||||||||||||||||
Db 1 TCCATAACGTTCCTGATGCT 20

RESULT 3
US-10-023-909A-43
; Sequence 43, Application US/10023909A
; Patent No. US20020164341A1
; GENERAL INFORMATION:
; APPLICANT: Davis, Heather L.
; APPLICANT: Schorr, Joachim
; APPLICANT: Krieg, Arthur M.
; TITLE OF INVENTION: Use of Nucleic Acids Containing
; TITLE OF INVENTION: Unmethylated CpG Dinucleotide as an Adjuvant
; FILE REFERENCE: C1039/7058/HCL
; CURRENT APPLICATION NUMBER: US/10/023,909A
; CURRENT FILING DATE: 2001-12-18
; PRIOR APPLICATION NUMBER: US 09/325,193
; PRIOR FILING DATE: 1999-06-03
; PRIOR APPLICATION NUMBER: US 09/154,614
; PRIOR FILING DATE: 1998-09-16
; PRIOR APPLICATION NUMBER: PCT/US98/04703
; PRIOR FILING DATE: 1998-03-10
; PRIOR APPLICATION NUMBER: US 60/040,376
; PRIOR FILING DATE: 1997-03-10
; NUMBER OF SEQ ID NOS: 98
; SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 43
; LENGTH: 20
; TYPE: DNA
; ORGANISM: Artificial Sequence
; FEATURE:
; OTHER INFORMATION: Synthetic Oligonucleotide
US-10-023-909A-43

Query Match 100.0%; Score 20; DB 9; Length 20;
Best Local Similarity 100.0%; Pred. No. 0.17;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 TCCATAACGTTCCTGATGCT 20
||||||||||||||||||||
Db 1 TCCATAACGTTCCTGATGCT 20

RESULT 4
US-09-920-313-43
; Sequence 43, Application US/09920313
; Publication No. US20020198165A1
; GENERAL INFORMATION:
; APPLICANT: Bratzler, Robert L.
; APPLICANT: Petersen, Deanna M.
; TITLE OF INVENTION: Nucleic Acids for the Prevention and
; TITLE OF INVENTION: Treatment of Gastric Ulcers
; FILE REFERENCE: C1037/7019 (HCL/MAT)
; CURRENT APPLICATION NUMBER: US/09/920,313
; CURRENT FILING DATE: 2001-08-01
; PRIOR APPLICATION NUMBER: US 60/222,248
; PRIOR FILING DATE: 2001-08-08
; NUMBER OF SEQ ID NOS: 148
; SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 43
; LENGTH: 20
; TYPE: DNA
; ORGANISM: Artificial Sequence
; FEATURE:
; OTHER INFORMATION: Synthetic Sequence
US-09-920-313-43

Query Match 100.0%; Score 20; DB 9; Length 20;
Best Local Similarity 100.0%; Pred. No. 0.17;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 TCCATAACGTTCCTGATGCT 20
||||||||||||||||||||
Db 1 TCCATAACGTTCCTGATGCT 20

RESULT 5
US-09-888-326-545
; Sequence 545, Application US/09888326
; Publication No. US20030026801A1
; GENERAL INFORMATION:
; APPLICANT: Weiner, George
; APPLICANT: Hartmann, Gunther
; TITLE OF INVENTION: Methods for Enhancing Antibody-Induced
; TITLE OF INVENTION: Cell Lysis and Treating Cancer
; FILE REFERENCE: C1039/7052 (AWS)
; CURRENT APPLICATION NUMBER: US/09/888,326
; CURRENT FILING DATE: 2001-06-22
; PRIOR APPLICATION NUMBER: US 60/213,346
; PRIOR FILING DATE: 2000-06-22
; NUMBER OF SEQ ID NOS: 848
; SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 545
; LENGTH: 20
; TYPE: DNA
; ORGANISM: Artificial Sequence
; FEATURE:
; OTHER INFORMATION: Synthetic oligonucleotide
; NAME/KEY: misc_feature
; LOCATION: (0)...(0)
; OTHER INFORMATION: phosphodiester backbone
US-09-888-326-545

Query Match 100.0%; Score 20; DB 9; Length 20;
Best Local Similarity 100.0%; Pred. No. 0.17;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 TCCATAACGTTCCTGATGCT 20
||||||||||||||||||||
Db 1 TCCATAACGTTCCTGATGCT 20

RESULT 6
US-09-824-468-49
; Sequence 49, Application US/09824468
; Patent No. US20020064515A1
; GENERAL INFORMATION:
; APPLICANT: Krieg, Arthur M.
; APPLICANT: Weiner, George
; TITLE OF INVENTION: Methods and Products for Stimulating the
; TITLE OF INVENTION: Immune System Using Immunotherapeutic Oligonucleotides and
; TITLE OF INVENTION: Cytokines
; FILE REFERENCE: C1039/7026/HCL

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;  CURRENT APPLICATION NUMBER: US/09/824,468
;  CURRENT FILING DATE:  2001-04-02
;  PRIOR APPLICATION NUMBER: 09/286,098
;  PRIOR FILING DATE: 1999-04-02
;  NUMBER OF SEQ ID NOS: 105
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 49
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic Sequence
US-09-824-468-49

  Query Match             100.0%;  Score 20;  DB 10;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 0.17;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 TCCATAACGTTCCTGATGCT 20
          ||||||||||||||||||||
Db      1 TCCATAACGTTCCTGATGCT 20


RESULT 7
US-09-800-266A-19
; Sequence 19, Application US/09800266A
; Patent No. US20020156033A1
; GENERAL INFORMATION:
;  APPLICANT: Bratzler, Robert L.
;  APPLICANT:  Petersen, Deanna M.
;  TITLE OF INVENTION: Immunostimulatory Nucleic Acids and
;  TITLE OF INVENTION:  Cancer Medicament Combination Therapy for the Treatment of
;  TITLE OF INVENTION:  Cancer
;  FILE REFERENCE: C1037/7017(HCL/MAT)
;  CURRENT APPLICATION NUMBER: US/09/800,266A
;  CURRENT FILING DATE:  2001-03-05
;  PRIOR APPLICATION NUMBER: US 60/187,214
;  PRIOR FILING DATE: 2000-03-03
;  NUMBER OF SEQ ID NOS: 146
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 19
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic Sequence
US-09-800-266A-19

  Query Match             92.0%;  Score 18.4;  DB 9;  Length 20;
  Best Local Similarity   95.0%;  Pred. No. 1.2;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy      1 TCCATAACGTTCCTGATGCT 20
          |||||.|||||||||||||||
Db      1 TCCATGACGTTCCTGATGCT 20


RESULT 8
US-09-846-091-4
; Sequence 4, Application US/09846091
; Patent No. US20020165176A1
; GENERAL INFORMATION:
;  APPLICANT: HAYNES, Joel R.
;  APPLICANT:  MACKLIN, Michael D.
;  APPLICANT:  PAYNE, Lendon G.
;  TITLE OF INVENTION: NUCLEIC ACID IMMUNIZATION
;  FILE REFERENCE: APF40
;  CURRENT APPLICATION NUMBER: US/09/846,091
;  CURRENT FILING DATE:  2001-04-30
;  PRIOR APPLICATION NUMBER: US/09/561,951
;  PRIOR FILING DATE: 2000-05-01
;  NUMBER OF SEQ ID NOS: 11
;  SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 4
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Description of Artificial Sequence: Synthetic
;   OTHER INFORMATION: Construct
US-09-846-091-4

  Query Match             92.0%;  Score 18.4;  DB 9;  Length 20;
  Best Local Similarity   95.0%;  Pred. No. 1.2;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy      1 TCCATAACGTTCCTGATGCT 20
          |||||.|||||||||||||||
Db      1 TCCATGACGTTCCTGATGCT 20


RESULT 9
US-09-895-007A-19
; Sequence 19, Application US/09895007A
; Patent No. US20020165178A1
; GENERAL INFORMATION:
;  APPLICANT: Schetter, Christian
;  APPLICANT:  Bratzler, Robert L.
;  APPLICANT:  Petersen, Deanna M.
;  TITLE OF INVENTION: IMMUNOSTIMULATORY NUCLEIC ACIDS FOR THE
;  TITLE OF INVENTION:  TREATMENT OF ANEMIA, THROMBOCYTOPENIA, AND NEUTROPENIA
;  FILE REFERENCE: C1041/7014 (AWS)
;  CURRENT APPLICATION NUMBER: US/09/895,007A
;  CURRENT FILING DATE:  2001-06-28
;  PRIOR APPLICATION NUMBER: US 60/214,368
;  PRIOR FILING DATE: 2000-06-28
;  NUMBER OF SEQ ID NOS: 133
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 19
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic oligonucleotide
US-09-895-007A-19

  Query Match             92.0%;  Score 18.4;  DB 9;  Length 20;
  Best Local Similarity   95.0%;  Pred. No. 1.2;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy      1 TCCATAACGTTCCTGATGCT 20
          |||||.|||||||||||||||
Db      1 TCCATGACGTTCCTGATGCT 20


RESULT 10
US-10-023-909A-19
; Sequence 19, Application US/10023909A
; Patent No. US20020164341A1
; GENERAL INFORMATION:
;  APPLICANT: Davis, Heather L.
;  APPLICANT:  Schorr, Joachim
;  APPLICANT:  Krieg, Arthur M.
;  TITLE OF INVENTION: Use of Nucleic Acids Containing
;  TITLE OF INVENTION:  Unmethylated CpG Dinucleotide as an Adjuvant
;  FILE REFERENCE: C1039/7058/HCL
;  CURRENT APPLICATION NUMBER: US/10/023,909A
;  CURRENT FILING DATE:  2001-12-18
;  PRIOR APPLICATION NUMBER: US 09/325,193
;  PRIOR FILING DATE: 1999-06-03
;  PRIOR APPLICATION NUMBER: US 09/154,614
;  PRIOR FILING DATE: 1998-09-16
;  PRIOR APPLICATION NUMBER: PCT/US98/04703
;  PRIOR FILING DATE: 1998-03-10
;  PRIOR APPLICATION NUMBER: US 60/040,376
;  PRIOR FILING DATE: 1997-03-10
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;  NUMBER OF SEQ ID NOS: 98
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 19
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic Oligonucleotide
US-10-023-909A-19

  Query Match             92.0%;  Score 18.4;  DB 9;  Length 20;
  Best Local Similarity   95.0%;  Pred. No. 1.2;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy      1 TCCATAACGTTCCTGATGCT 20
          ||||| ||||||||||||||
Db      1 TCCATGACGTTCCTGATGCT 20


RESULT 11
US-09-920-313-19
; Sequence 19, Application US/09920313
; Publication No. US20020198165A1
; GENERAL INFORMATION:
;  APPLICANT: Bratzler, Robert L.
;  APPLICANT:  Petersen, Deanna M.
;  TITLE OF INVENTION: Nucleic Acids for the Prevention and
;  TITLE OF INVENTION:  Treatment of Gastric Ulcers
;  FILE REFERENCE: C1037/7019 (HCL/MAT)
;  CURRENT APPLICATION NUMBER: US/09/920,313
;  CURRENT FILING DATE:  2001-08-01
;  PRIOR APPLICATION NUMBER: US 60/222,248
;  PRIOR FILING DATE: 2001-08-08
;  NUMBER OF SEQ ID NOS: 148
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 19
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic Sequence
US-09-920-313-19

  Query Match             92.0%;  Score 18.4;  DB 9;  Length 20;
  Best Local Similarity   95.0%;  Pred. No. 1.2;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy      1 TCCATAACGTTCCTGATGCT 20
          ||||| ||||||||||||||
Db      1 TCCATGACGTTCCTGATGCT 20


RESULT 12
US-10-205-150-7
; Sequence 7, Application US/10205150
; Publication No. US20020197269A1
; GENERAL INFORMATION:
;  APPLICANT: LINGNAU, KAREN ET AL.
;  TITLE OF INVENTION: PHARMACEUTICAL COMPOSITION FOR IMMUNOMODULATION AND PREPARATION
;  TITLE OF INVENTION:  OF VACCINES COMPRISING AN ANTIGEN AND AN IMMUNOGENIC OLIGODEOXYN
;  TITLE OF INVENTION:  AND A POLYCATIONIC POLYMER AS ADJUVANTS
;  FILE REFERENCE: SONN:018US
;  CURRENT APPLICATION NUMBER: US/10/205,150
;  CURRENT FILING DATE:  2002-07-25
;  PRIOR APPLICATION NUMBER: PCT/EP01/00087
;  PRIOR FILING DATE: 2001-01-05
;  NUMBER OF SEQ ID NOS: 9
;  SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 7
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Description of Artificial Sequence:  Synthetic
;   OTHER INFORMATION: Primer
US-10-205-150-7

  Query Match             92.0%;  Score 18.4;  DB 9;  Length 20;
  Best Local Similarity   95.0%;  Pred. No. 1.2;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy      1 TCCATAACGTTCCTGATGCT 20
          ||||| ||||||||||||||
Db      1 TCCATGACGTTCCTGATGCT 20


RESULT 13
US-10-011-635A-1
; Sequence 1, Application US/10011635A
; Publication No. US20030003579A1
; GENERAL INFORMATION:
;  APPLICANT: Kadowaki, No. US20030003579A1imitsu
;  APPLICANT:  Liu, Yong-Jun
;  TITLE OF INVENTION: Dendritic cells; Methods
;  FILE REFERENCE: DX01206
;  CURRENT APPLICATION NUMBER: US/10/011,635A
;  CURRENT FILING DATE:  2001-10-22
;  PRIOR APPLICATION NUMBER: 60/243,232
;  PRIOR FILING DATE: 2000-10-24
;  NUMBER OF SEQ ID NOS: 6
;  SOFTWARE: PatentIn version 3.1
; SEQ ID NO 1
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Sparwasser, et al. (1998) Eur. J. Immunol. 28:2045-2054.
;   FEATURE:
;   NAME/KEY: misc_feature
;   LOCATION: (1)..(20)
;   OTHER INFORMATION: From Sparwasser, et al. (1998).
;   FEATURE:
;   NAME/KEY: misc_feature
;   LOCATION: (1)..(20)
;   OTHER INFORMATION: Sparwasser, et al. (1998) Eur. J. Immunol. 28:2045-2054.
US-10-011-635A-1

  Query Match             92.0%;  Score 18.4;  DB 9;  Length 20;
  Best Local Similarity   95.0%;  Pred. No. 1.2;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy      1 TCCATAACGTTCCTGATGCT 20
          ||||| ||||||||||||||
Db      1 TCCATGACGTTCCTGATGCT 20


RESULT 14
US-09-415-142-25
; Sequence 25, Application US/09415142
; Publication No. US20030026782A1
; GENERAL INFORMATION:
;  APPLICANT: Krieg, Arthur M.
;  APPLICANT:  Klinman, Dennis
;  APPLICANT:  Steinberg, Alfred D.
;  TITLE OF INVENTION: IMMUNOMODULATORY OLIGONUCLEOTIDES
;  FILE REFERENCE: C1039/7029
;  CURRENT APPLICATION NUMBER: US/09/415,142
;  CURRENT FILING DATE:  1999-10-09
;  PRIOR APPLICATION NUMBER: US 08/386,063
;  PRIOR FILING DATE: 1995-02-07
;  NUMBER OF SEQ ID NOS: 27
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 25
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
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;   FEATURE:
;   OTHER INFORMATION: Synthetic oligonucleotide
US-09-415-142-25

  Query Match             92.0%;  Score 18.4;  DB 9;  Length 20;
  Best Local Similarity   95.0%;  Pred. No. 1.2;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy       1 TCCATAACGTTCCTGATGCT 20
           ||||| ||||||||||||||
Db       1 TCCATGACGTTCCTGATGCT 20


RESULT 15
US-09-888-326-127
; Sequence 127, Application US/09888326
; Publication No. US20030026801A1
; GENERAL INFORMATION:
;  APPLICANT: Weiner, George
;  APPLICANT:  Hartmann, Gunther
;  TITLE OF INVENTION: Methods for Enhancing Antibody-Induced
;  TITLE OF INVENTION:  Cell Lysis and Treating Cancer
;  FILE REFERENCE: C1039/7052 (AWS)
;  CURRENT APPLICATION NUMBER: US/09/888,326
;  CURRENT FILING DATE:  2001-06-22
;  PRIOR APPLICATION NUMBER: US 60/213,346
;  PRIOR FILING DATE: 2000-06-22
;  NUMBER OF SEQ ID NOS: 848
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 127
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic oligonucleotide
;   NAME/KEY: misc_feature
;   LOCATION: (0)...(0)
;   OTHER INFORMATION: phosphodiester backbone
;   NAME/KEY: misc_feature
;   LOCATION: (1)...(1)
;   OTHER INFORMATION: biotinylated at 5' end
US-09-888-326-127

  Query Match             92.0%;  Score 18.4;  DB 9;  Length 20;
  Best Local Similarity   95.0%;  Pred. No. 1.2;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy       1 TCCATAACGTTCCTGATGCT 20
           ||||| ||||||||||||||
Db       1 TCCATGACGTTCCTGATGCT 20


Search completed: March  2, 2003, 00:47:02
Job time : 43.5 secs
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